# THE CAUSES OF STRESS IN SMALL BUSINESSES: AN EXPLORATORY STUDY

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Joan Crowe

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## ABSTRACT

The major purpose of this study was to explore the causes of stress in small businesses. The sample comprised 91 Christchurch small business owner/operators with a variety of types and sizes of business. The research instruments were a questionnaire to obtain demographic data, and a Repertory Grid which consisted of both the stressful situations and the reasons why they caused stress. The Repertory Grid data were computer analysed to produce consensus grids for 14 subgroups, and these were submitted to a principal components analysis, which showed the relationships between the stressful situations and the reasons for stress. Mean scores for each 'situation' and each 'reason' were also obtained for the subgroups. For all groups a strikingly similar pattern of financial stress emerged that was precipitated by the general downturn in business. Collecting debts, both from customers and other businesses, was a major problem, and this, in turn, lead to difficulty in paying accounts. Businesspeople were also working long hours because of reduced staffing levels and the increasing pressure of administration work, mainly caused by the bureaucratic demands of the deregulated economy. The results showed a tendency for males to be more concerned about financial security, and females were more stressed by long working hours. However, most respondents were worried about a decrease in consumer demand, and the combined effects of long working hours and anxiety about the future appeared to have consequences for both the businessperson's health and home life.

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# CHAPTER ONE

# INTRODUCTION

## 1.1 OVERVIEW

Stress in small business has been largely ignored in the psychological literature, but it is becoming an increasingly important topic in times of economic recession and high unemployment. Small businesses are the main vehicle for expanding employment, and the minimisation of stress for their owner/operators could be helpful in decreasing the high incidence of closure of small businesses in New Zealand. Therefore, this research project explores the causes of stress in small businesses.

This introductary chapter is divided into three broad sections which deal with what is known about occupational stress. The first section defines the terms used in stress research, and describes the models applicable to this study. The second section concentrates on what is known about occupational stress from the empirical studies, with particular reference to the literature relevant to New Zealand. The third section deals with occupational stress of the self-employed, with the emphasis on the problems of small business owners, and also focusses on financial stress. Background information on Repertory Grid technique is included at the end of this chapter.

Chapter Two outlines the methodology of this empirical study. It includes a description of the statistical analyses of the demographic data and of the Repertory Grid, which is used in this study to explore the situations that cause stress and the reasons why they cause stress. Chapter Three describes the results of the research. These are discussed in Chapter Four where they are placed in the wider socio-economic environment of New Zealand. The final chapter states the conclusions reached. It

is followed by a list of references and four appendices which contain copies of the Repertory Grid, the questionnaire used in the field work, a graph for converting angular distances to correlations, and the principal components output from the Repertory Grid statistical analysis.

## 1.2 DEFINITION OF TERMS

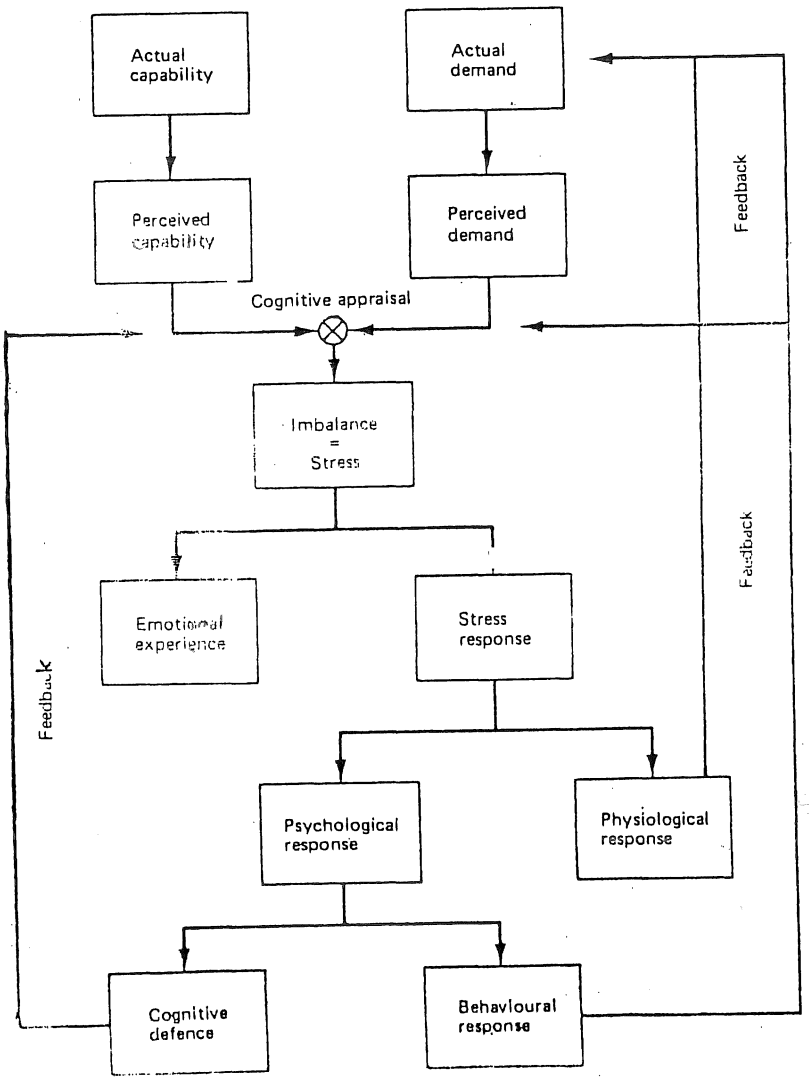
There has been an increasing interest in stress over the last 10 years because of the realisation of its potentially deleterious effects on job performance as well as on physical and mental health. Researchers are also interested in the effects of stress on job outcomes such as dissatisfaction and absenteeism.

This research will follow the recent trends in the literature on stress, which describe 'strain' as the change in the state of the internal system which results from an external 'stress', and the conditions which cause strain as 'stressors'.

Stress has been studied in a number of ways:
(a) it can be treated as a dependent variable, described in terms of a person's response to disturbing or noxious environments;
(b) it can be treated as an independent variable, which represents a stimulus in terms of those disturbing or noxious environments; and
(c) it can be treated as an intervening variable between the stimulus and the response. This approach views stress as the reflection of a lack of 'fit' between the person and the environment. Beehr & Newman (1978, p.670) define job stress as, a condition "wherein job related factors interact with the worker to change (disrupt or enhance) his/her psychological or physiological condition such that the person (mind and/or body) is forced to deviate from normal functioning". McGrath(1976) also sees situations as potentially stressful when their demands threaten to exceed

a person's capabilities, but adds that there needs to be a substantial difference in the expected reward if the demand is not met for the situation to be stressful. In other words, the Person-Environment Fit Theory treats stress as arising from the interaction of the characteristics of the individual and the potential sources of stress in the work environment. Implicit in this statement is the belief that stress is neither a characteristic of the environment nor the person, but lies in the appraisal of both by the person.

Fig 1.1 TRANSACTIONAL MODEL OF STRESS



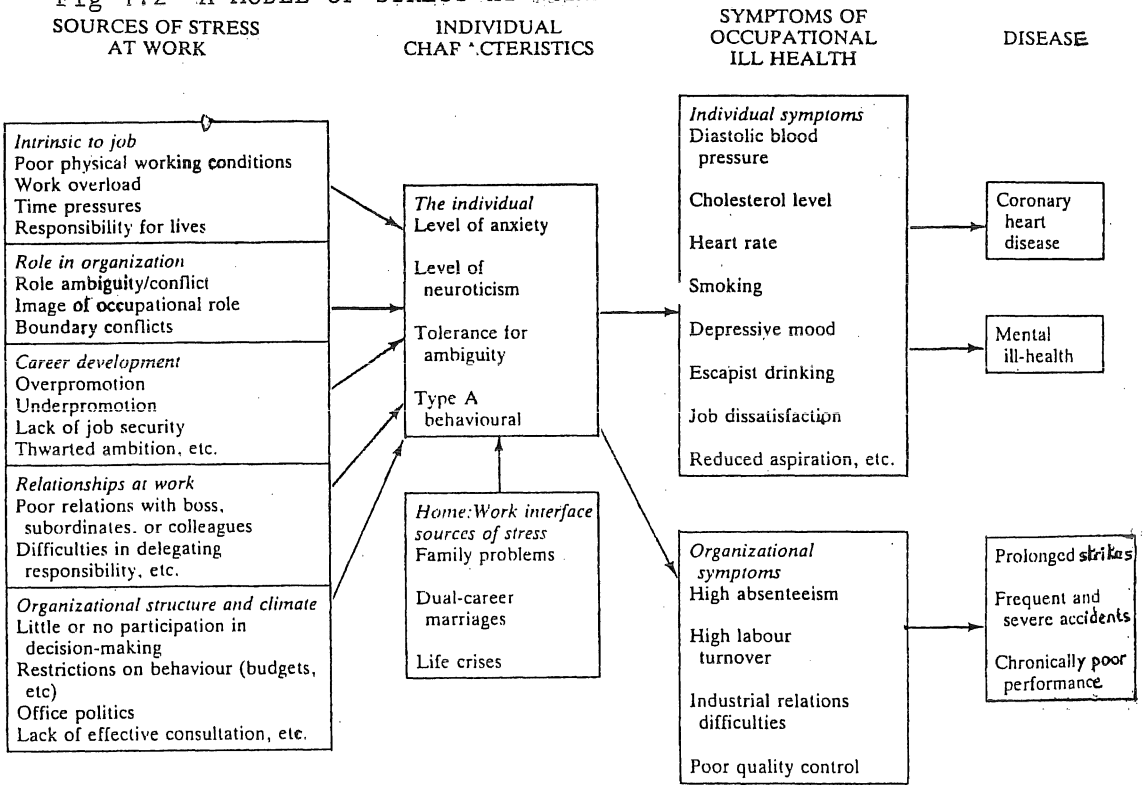

## 1.3 MODELS OF STRESS

Figure 1.1 is a representation of the stress reaction as applicable to the Transactional Model of Stress (Cox and

Mackay 1976, cited in Cox, 1979). It illustrates how the stress response is affected by both how capable the person perceives him/herself to be of dealing with the situation, and how much the person perceives the situation to demand of him/her.

In the work situation, both the actual and perceived capabilities and the actual and perceived demands are affected by factors intrinsic to the organisational environment and individual factors intrinsic to the person under stress. Figure 1.2 is a model of stress at work (Cooper 1986) which shows the organisational sources of stress, the individual characteristics which are thought to affect the stress response, and also the possible psychological and physiological responses that may be outcomes of occupational stress.

Fig 1.2 A MODEL OF STRESS AT WORK



The preceding concept of the stress response has inspired the investigation of links between the job factors and individual differences on the one side and physiological and psychological outcomes on the other side. However, correlations between the independent and the dependent variables have proved elusive, because situational variables such as group cohesiveness and supervisor support have been found to moderate the strength of the relationship between the job strains and the job outcomes.

## 1.4 METHODOLOGICAL PROBLEMS

There are a number of methodological problems encountered in the study of the stress phenomenon. One problem is caused by the multicollinearity inherent in the large number of intercorrelated variables typically associated with job stress. Kagan & Levi (1974) reviewed the literature and found no examples of definite causal relations between psycho-social stressors and illness. Even though there are good reasons to believe that psycho-social conditions can be associated with the onset of illness, Kagan & Levi believe that the stress phenomenon is more complex than the general model suggests because few studies have found more than 20 per cent of the variance accounted for by the dependent stress measure.

Another problem stems from the inaccuracies that arise with cross-sectional, self-report studies because of the low reliability and validity of the questionnaires used. Jick (1980, cited in Payne et al, 1982) questions the validity of many of the stress scales, as he found that similar and 'reliable' scales often produced different results. Similarly, Beehr & Newman (1978) argue for experimental designs because correlational studies do not allow direct inferences regarding the direction of causation.

Another major problem in the evaluation of stress is that it is difficult to separate the effects of coping strategies. If an event has no measurable effect on a

person, it is difficult to know if this is because the event was not perceived as stressful, or if the person coped successfully with the stress.

With regard to the obvious complexity of the stress phenomenon, Payne et al (1982) argue that it is important to replace correlational studies with multiple methods such as field experiments and longitudinal studies, combined with detailed descriptions of events occurring as a result of the experimental interventions or the observation of processes occurring over time. This would allow more powerful explanations of both a causal and a descriptive nature.

However, because stress phenomena are complex, Parker & DeCotiis (1983) admit that it may not be possible to arrive at a theory specifying only a few variables that cause content, processes and consequences of strain. Therefore, it is necessary to settle for partial tests of complex models even if this produces some ambiguity in the results. Payne et al (1982) also concede that progress can be made in job stress research by concentrating on small sections of the problem.

## 1.5 OCCUPATIONAL STRESS

Much of the early research work carried out on stress-related problems attempted to isolate the job factors associated with stress. Similar factors have been investigated across different occupations but, in fact, it may be necessary to be occupation specific, as the bulk of the evidence points to different factors causing problems in different occupational groups. For example, Harrison (1975, cited in Cooper & Marshall, 1980) found that, compared with scientists and administrators, 'job underload' is not a stressor for police. Van Harrison (1978 cited in Cooper & Marshall, 1980) suggests that this is because the police see possible work underload as an integral part of their job and it, therefore, has little

effect on their overall job satisfaction. However, the 'danger of bodily harm' is a significant stressor for police (DeLeyn, 1984). An idiosyncratic source of stress for some dentists is their image as 'inflictors of pain' (Cooper et al, 1978), and for teachers, Sutton (1984) found that role demands are a more potent form of stress than interpersonal conflict.

In an extensive study of occupational stress among dentists, Cooper et al (1978) looked at both job factors and individual differences and found that, on balance, personality factors are less consistently predictive of coronary heart disease (CHD) than job pressures such as 'too little work', excessive 'administrative duties', and 'difficult patients'. However, they also found that the dentist most prone to CHD is "one who is anxiety-prone and, perhaps, somewhat less emotionally stable" (p.233), and these personality variables may make him/her more vulnerable to job factor stressors.

Although job factors are obviously relevant to occupational stress, Cherry (1984) in a longitudinal study of nervous strain, anxiety and symptoms amongst 32-year-old men, found that, as well as job factors, reported nervous strain related to earlier indications of prior susceptibility to anxiety.

## 1.6 INDIVIDUAL DIFFERENCES AND HEALTH SYMPTOMS

A lot of research on occupational stress has moved away from job factors towards the study of how individual differences affect the stress response. There is evidence that some people are less able to cope with or adapt to stress-provoking situations. Consequently, one line of research concentrates on the relationship between stress related diseases and various psychometric measures. Another direction is the relationship between the incidence of disease and stress-prone behaviour patterns. Friedman (1969, cited in Cooper & Crump, 1978) found a

relationship between behavioural patterns and the prevalence of CHD, and he refers to the individual with these behavioral patterns as the 'coronary-prone behaviour pattern Type A' as opposed to the low-risk-CHD Type B individual.

However, this behavioural approach is not without critics. Blackburn (1975, cited in Cooper & Crump, 1978) points to Japan with its fast-paced and overcrowded lifestyle but a very low incidence of CHD, whereas Finnish farmers who enjoy a leisurely outdoor lifestyle have a very high incidence of CHD.

Jenkins (1971, cited in Cooper & Crump, 1978) analysed six studies which used the MMPI, and found significant personality differences in CHD patients, particularly for scores on neuroticism, depression and hysteria, before their illness, as compared with individuals who remained healthy. However, the danger of retrospective studies lies in the possibility that personality factors may be reactions to illness rather than precursors of it.

CHD is not the only health problem that may relate to stress. Cherry (1984) noted that employees who are under strain tend also to complain of problems with their health such as headache, difficulty sleeping and digestive problems. Skin and hair problems are also frequently associated with stress.

The cause and effect relationship between (ill) health symptoms and stress is particularly difficult to assess. For example, Kasl (1978, cited in Cherry, 1984) argues that a person may describe his/her job unfavourably because s/he is anxious about factors outside work. Another real possiblility is that differences in symptoms between groups working at different levels of jobs strain may be because of either recruitment or retention factors.

## 1.7 HOME/WORK INTERACTION

Work demands are only one aspect of most people's lives. Therefore, it is plausible that psychological and physical work demands may cause conflict between work and non-work roles, and similarly for home demands. Cooper et al (1978, p.233) note that the dentists in their study experienced some stress from their "jobs interfering with their personal lives". Howard et al (1976, cited in Cooper et al, 1978) found home/work conflict to be one of the best predictors of job dissatisfaction among a small group of Canadian dentists.

Most researchers report home/work role conflict as a greater strain for women. Gordon & Strober (1978, cited in Haw, 1982) compared men and women at similar occupational levels and found that women reported symptoms of depression, feeling overwhelmed, and stomach distress more frequently than men. The Framingham study (Haynes & Feinleib, 1980 cited in Haw, 1982) found a statistically significant increased incidence of CHD among female clerical workers with significant family responsibilities, as compared with housewives. Although it stands alone and has sampling limitations the Framingham study provides the best known evidence that having primary responsibility for housework and childcare may be a significant variable in the stress process.

## 1.8 JOB OUTCOMES

At the individual level, job dissatisfaction is one of the possible behavioural outcomes of job stress shown in figure 1.2. However, when investigating job dissatisfaction, we once again encounter cause and effect problems of whether job dissatisfaction is a result of job stress or a cause of job stress. Interestingly, Beutell & O'Hare (1987) found that women MBA female students who reported higher levels of work-nonwork conflict also reported being more satisfied with their jobs. This may be explained by Hyde's (1985, cited in Beutell & O'Hare 1987) suggestion that

women who experience high levels of job satisfaction might also experience guilt if they feel they are neglecting their homes and families.

Absenteeism is another documented result of strain in the occupational environment. For example, Parke's (1982) group of student nurses showed a positive relationship between absenteeism and distress, with higher sickness absence levels whilst working in the medical ward where work satisfaction was lower. In New Zealand the NZEI carried out a survey of 80 teachers in the Papatoetoe-Otara-Mangere area. They found that teachers who reported satisfaction with their jobs took less sick leave than dissatisfied teachers (Chinnery, 1979).

## 1.9 NEW ZEALAND STUDIES OF OCCUPATIONAL STRESS

Most of the research into occupational stress just reviewed, has been carried out in America and Britain. Obviously a different set of circumstances exist in New Zealand because, for example, work environments tend to be small which may lead to greater job discretion. In New Zealand recent work on occupational stress has been mainly exploratory. For examp e, Dewe has investigated the causes of teacher stress (Dewe,1986), the causes of nurses' stress and their coping strategies (Dewe, 1987a), and causes of stress and coping strategies for ministers of religion (Dewe,1987b). Dewe advocates in-depth interviewing to target stress constructs and allow us to understand the process as well as the determinants of stress.

Geare (1987) illustrated the complexity of the stress phenomenon in his study of 995 New Zealand managers. Geare emphasised the fact that stress can either increase or decrease performance. Because of individual differences, between one quarter and one third of the managers in his sample perceived their job stress as being too low, and between one third and a half perceived their job stress as being too high. However, in most cases, there was a

difference in ratings for the stress considered necessary for maximum performance and the stress considered necessary for maximum enjoyment. In fact, the managers' responses showed that the perceived optimal level of stress necessary for maximum performance is marginally greater than the perceived actual level. Therefore, for high productivity, stress levels are best where they are, or raised, but if organisations want managers to enjoy their jobs then stress levels should be reduced. However on a practical level, Geare pointed out that this is impossible to accomplish because of the individual variations in desired stress levels. The main job factor causing stress was 'excessive time pressures'. Geare advocates a more balanced approach to the subject of stress, rather than the assumption that if managers are working under stress then a problem must exist. It is necessary to examine both the behaviour and performance of the managers to assess the stimulatory and strain effects.

## 1.10 STRESS IN THE SELF-EMPLOYED

Traditionally the self-employed have been thought to have less work stress than the employed because they have no supervisors to whom they must answer and no organisational standards to which they must conform. Yet to some extent the self-employed inherit the stress of both the manager and the worker. In their study of dentists (who are self-employed), Cooper et al (1978) found that the demands of building and sustaining a practice consistently appeared as a significant source of pressure in each of the health indices that they used. Other sources of stress unrelated to actual dental work were 'too little work', 'administrative duties' and 'dealing with difficult customers', whereas 'organising and interacting with staff' was not significant in the analyses. Eden (1975) compared national survey data for 1902 employees and 183 self-employed workers. The results show that the self-employed enjoy more enriching job

requirements, opportunities for self-fulfilment and skill utilisation, autonomony, better physical working conditions, authority over other persons, and better resources with which to do the job. The employed group reported more friendly relations with co-workers, greater job security, and more convenient hours. Despite these differences, the self-employed showed only slightly higher job satisfaction than organisation members, and no difference in mental health. Statistical analysis confirmed that organisational membership as opposed to self-employment has a positive net effect upon psychological outcomes. In terms of work values, having sufficient time to complete their work was more important to the self-employed, and having good hours was more important to organisation members. Therefore, worktime is important to the self-employed for what they can accomplish, and non-work time is important to employees for recreation etc. Eden (p.92) concluded that:

> "Self-employed work environments are more demanding than are organisational settings. They require more hours of work and harder work. They more often require supervisory duties, learning of new skills, and creativity. These settings also allow, or require, greater autonomy and more frequent contacts with persons not part of the work setting. All in all, these settings seem to demand, and get, greater investments of time and energy from those who work in them .....The essential difference between organisational membership and self-employment may thus revolve around how much an individual worker must invest his own energy in the effort to maintain the work setting. The relatively high investment of psychological energy required of the self-employed may explain why they fail to reap more favorable psychological outcomes from their jobs".

In New Zealand the majority of the self-employed are owner-operating small businesses.

## 1.11 SMALL BUSINESS IN NEW ZEALAND

### 1.11.1 DEFINITION OF A SMALL BUSINESS

Porter (1988) reported from the Consultlink survey, which drew from various United Kingdom and New Zealand government and university reports, that the distinction between large and small businesses is to do with ownership and management by the owner. The demographic definition derived is:

> "A small business is the segment inhabited by persons with the following:
> (a) Full time occupation
> (b) Owning the assets of the organisational unit
> (c) Not part of another organisational unit
> (d) Makes the decisions on running the unit
> (e) Employing 0-9 persons
> (f) One-third of manufacturing group employing 10 -49 persons".

In New Zealand, the Small Business Association's Act has a formal definition of small businesses as being normally those which:

- in the manufacturing sector, employ fewer than 50 people
- in the wholesale and retail sector, employ fewer than 25 people
- in the service sector, employ fewer than 10 people (Devlin 1984a)

For the purpose of this research, these definitions are largely applicable, but have not been inflexibly applied. For example, labour on a berry farm might normally be fewer than 10 people but rise to 200 in the short picking season.

### 1.11.2 DEMOGRAPHY OF SMALL BUSINESS

In 1984, between 90 and 95 per cent of all companies in New Zealand fell into the small business category. The following figures from the 1981 census illustrate the importance of the small business in the New Zealand work force (Devlin, 1984b):

The self-employed in New Zealand totalled over 170,000 and would appear to form the basis of the owner-managed small business population. This figure consisted of:

Self-employed persons not employing labour (including farmers) - 93,132.

Self-employed persons employing labour (including farmers) - 78,381.

Those who employed labour fell into the following categories:

| | |
|---|---|
| Wholesale trade | 4,599 |
| Retail trade | 26,226 |
| Restaurants and Hotels | 6,199 |
| Personal and Household Services | 6,531 |
| Manufacturing | 9,732 |
| Storage and Communications<br>Agricultural Contracting Services<br>Forestry and Logging<br>Fishing<br>Mining and Quarrying<br>Building, Construction and Housing<br>Service | 21,713 |

Therefore, in 1981, 54 per cent of the private sector work force were employed in small businesses, and small businesses contributed 45 per cent of the Gross National Product. They contributed 50 per cent of manufactured exports and more than 8 per cent of total exports (Devlin, 1984b).

New Zealand has an above average number of small businesses, and they also tend to be smaller than in most countries. However, small businesses do have a high failure rate, especially in the early years. In 1984, approximately 60 per cent of small business closed within the first four years (Devlin, 1984c).

### 1.11.3 THE IMPORTANCE OF SMALL BUSINESS

Lawrence (1984) has provided the first real evidence that small businesses, over a period of time, are the creators of

new jobs, whereas large enterprises in New Zealand have tended to reduce their labour forces. His investigation showed that small firms flourish in new developing industries and provide a mechanism for relieving structural unemployment and creating new employment opportunities. The process by which industries expand the number of persons employed appears to revolve around the volatile smaller business. However, the process is erratic as the rate of small business failure is high.

In the United Kingdom, the Bolton Report (1971, cited in Devlin 1984d), pointed out very clearly the roles which the small business plays in a national economy:

-They are an important means by which entrepreneurs enter business.
-They are often more efficient than larger firms in the production of certain goods and services.
-They offer variety and choice to consumers.
-They service and act as specialist suppliers to large firms.
-They provide competition in the economy.
-They are a very important source of innovation.
-They form the breeding ground of new industries.
-They offer people an independent, directly rewarding way of life.
-They also provide substantial services to large numbers of people who live outside the main centres and hence have an important role in the infrastructure of regional communities.

Yet in New Zealand, the importance of the small business sector to national well being is not fully appreciated, and New Zealand has only started to give minimal support to its small business sector in the last six years.

However, a significant proportion of the self-employed probably do not intend their businesses to grow, as feedback from Small Business Agency counsellors indicated that survival and the creation and maintenance of a preferred lifestyle are the goals of many owners (Devlin, 1984c).

Porter (1988) cited these reasons of preferred lifestyle, 'independence' and 'challenge' as the reasons why many businesses fail, as independence and challenge are not as useful as entrepreneurial skills.

1.11.4 PROBLEMS OF SMALL BUSINESS

Porter (1988) found that small business owners mainly obtained advice from accountants and bank managers rather than from government agencies, particularly for information about taxation and legislative changes. However, this advice is not always appropriate because some advisors lack understanding of the needs of businesspeople. Businesspeople also use one another extensively for information. Devlin (1984a) listed several reasons why small business in New Zealand suffers from a lack of assistance:

- -They have no independent association or collective voice.
- -They are not represented collectively at a national level.
- -There is no minister or under-secretary with responsibility for small business.
- -There is almost a total absence of research into the small business sector.
- -There is no university department actively concerned with small business.
- -There is no national policy on small business development.
- -There is no positive discriminatory legislation for small business, and some legislation is adverse.
- -There is no policy of Government tendering in favour of small business.
- -Assistance programmes are not aggressively marketed. Neither are they co-ordinated on a national or regional basis.

The Development Finance Corporation's Small Business Agency, is the only permanant programme in existence to investigate the sector and make recommendations. According to Devlin (1984a), other available services are poorly used, either because of lack of knowledge or because up to 15 per cent of

the small business population is in transition in any one year.

Small businesses also have difficulty raising finance. The smaller the firm, the larger the proportionate increase in capital required to respond to an increase in demand, but the lower it's ability to command loan and equity finance (Binks cited in Lawrence, 1984).Compared with large firms who have a 'track record' and financial advisors for the lender to assess, small businesses are at a distinct disadvantage in obtaining access to finance. Most small business owners also lack experience in presenting a good case to financiers. Under-capitalisation appears to be endemic among small businesses in New Zealand. All research involving small business identifies financing as the major problem, but few researchers give the problem any further attention. New Zealand bankers regard small business as 'high-risk', and their bias and stereotyping could, in fact, be the cause of failure of many small businesses. In this context, the treatment of women business owners by bank managers is particularly pertinent. Welsh (1988) interviewed more than 50 New Zealand women business owners, and reported that after presenting their projected cash flow charts, banking histories and other relevant financial data, more than half of those requesting loans did not receive them directly. Usually, overdraft facilities and co-signatures of spouses provided their funds. Five of the women complained of bank managers who obstructed their requests for financial support to expand the business; one of these was in a business beginning to turn over a quarter of a million dollars annually.

Much of the legislation and regulation in New Zealand that is meant to control the small number of large-scale institutions and organisations such as banks, finance houses, insurance companies, producer boards, large companies and government departments, acts to the detriment of small business. Activities concerning interest rates,

pricing regulations, reserve asset ratios, hire purchase regulations, etc., also have a substantial and adverse impact on small business (Devlin, 1984e). The time spent by small business owners attending to government demands, such as ACC forms, GST returns, statistical forms, inland revenue forms, etc., is growing. The deregulated economy has put more administrative pressure on small businesses. Small businesses are also strongly affected by the longer-term effects of economic measures (O'Brien, 1988).

### 1.11.5 SMALL BUSINESS STRESS AND SYMPTOMS

Studies of stress in New Zealand small businesses have mainly focussed on the agricultural sector. However, some of the main stressors identified are not dissimilar from those applicable to urban businesses. Pryde (1985, cited in Elvidge, 1987) found financial problems, long hours of work, government policies, and uncertainty and doubt about the future to be some of the main stressors in the New Zealand farming sector. Cary & Weston (1978, cited in Elvidge, 1987) found that those who were less hopeful about the future reported more psychological stress symptoms, especially sleep disturbance, motivation loss, and anxiety. In Britain, Cooper & Marshall (1980) reported that economic factors may also be a source of pressure for the dental practitioner with the effort involved in attempting to build and maintain a viable practice, which requires work overload, time pressures, keeping to a schedule, etc. And in the wider context, Brenner (1981, p.259) maintains that,

> "The stress of work during periods of economic contraction, is considerably more severe than during economic expansion because work pressures are increased and work satisfaction decreased during the contraction phases of economic activity .....
> there is a considerably heightened level of competition among firms in the same industry for the consumers' decreased purchasing power, often to the point that financial survival of the enterprise

is at stake".

1.11.6 RATIONALE FOR THIS RESEARCH PROJECT

Rising unemployment highlights the importance of the role of small businesses in job creation, as well as their importance in providing services and contributing revenue to Government, but the present downturn in the New Zealand economy is putting pressure on all businesses and many are going into receivership. New Zealand society has undergone much recent economic change, with the subsequent need for individual adjustments because of the radical effects this restructuring has had on many peoples' jobs. Two of the first groups to be affected by an economic downturn are those people who become unemployed, and those owning trade and retail businesses which are quickly afffected by the reduction in spending power of the public because of the rise in unemployment and the general decrease in business activity. Most published research on the effects of financial stress deals with the unemployed, for example, how they apportion their income compared with the employed (Harris, 1984), and the effects of this on the welfare of their families (Marsden & Duff, 1975). For the self-employed the line between employment and unemployment is less sharply defined than it is for employees. The financial viability of a business is not always easy to assess, and can depend on factors beyond the control of the owner. Therefore, during a period of economic downturn, the normal everyday stress of running a business may be exacerbated by concern about financial viability, which may have flow-on effects into psychological and physical areas, such as self-esteem and health, respectively.

Therefore, this research project aims to investigate the causes of stress in urban New Zealand small business to see if there is support for previous research which shows that lack of finance, lack of good financial advice, and bureaucratic government demands cause problems for small businesses. However no assumptions are made concerning the

causes of stress, and Repertory Grid technique will be used to elicit the stressors from the respondents, as described by Crump et al (1980 & 1981) in their investigations of stress among air traffic controllers. The use of Repertory Grid technique avoids the methodological problem often incurred with the use of predesigned questionnaires, of either not including or distorting important stressors. It is hoped to relate the results to the findings of previous research in the areas of job factors and job outcomes. Health effects on businesspeople will be investigated in a brief questionnaire. Although it is not possible in this research to examine personality factors and coping strategies, the qualitative data obtained during the administration of the Repertory Grid should provide insights into both the determinants and the process of stress in small business.

## 1.12 REPERTORY GRID TECHNIQUE

### 1.12.1 GENERALISED GRID TECHNIQUE

Repertory Grid has evolved beyond Kelly's (1955) conception. Chetwynd (1973) claims it is feasible to delineate a generalised technique because experimenters have concentrated on the application of Repertory Grid for measuring attitudes, opinions and structure, and have not been concerned about an underlying theory. She states,

> "A generalised grid technique for measuring the content and structure of the cognitive system has evolved from the interaction and combination of a number of assessment methods such as Kelly's Repertory Grid (Kelly, 1955), Osgood's Semantic Differential (Osgood et al, 1957) and Stephenson's Q-Sort technique (Stephenson, 1953). As a derived method it is tied to no theoretical basis and accompanied by no definite rules for its application or construction. On the contrary, it is a particularly flexible, adaptable instrument, changing to meet the

requirements of each experimental situation".

In referring to generalised grid technique, she includes all test situations which involve the scoring of a stimulus or stimuli on some attribute or attributes. The data is in the form of a matrix where each stimulus is evaluated on each attribute.

With the extended use of the generalised grid technique as a research tool rather than as a clinical tool, many researchers have used consensus grids to investigate a sample population. According to Fransella (1975, cited in Fransella & Bannister, 1977) rankings or ratings can be averaged for a group, when both constructs and elements are aligned, to produce a consensus grid which can be treated, statistically, in the same way as an individual grid. However, Yorke (1978) has expressed concern about the assumption that consensus exists in the perception of elements and constructs.

### 1.12.2 THE STATISTICAL ANALYSIS OF REPERTORY GRID

The most widely used programs for the statistical analysis of Repertory Grid were produced by Patrick Slater. By conceptualising psychological space as a hypersphere, Slater (1964, cited in Fransella & Bannister, 1977) was able to quantify the extent to which elements and constructs, on a ranked or rated grid interacted. The programs used in the present study are INGRID (Slater, 1967 cited in Chetwynd, 1973), and SERIES (Slater, date unspecified, cited in Chetwynd, 1973).

The INGRID principal component analysis program is for the analysis of a single grid and gives a detailed account of the relationships present in the grid. The correlations between the constructs often reveal much about the respondents construct systems. The INGRID program gives the correlations between the constructs, the distances between the elements, the loadings of both constructs and elements on each of the components, and the interrelationships

between the constructs and the elements.

INGRID also gives a breakdown of how much of the total variation present in the grid is accounted for by each of the constructs and each of the elements. From the information in the INGRID analysis, it is possible to map the relationships between the elements and the constructs on the axes of the major components in a two or three dimensional geometrical representation. This mapping is not part of the INGRID output. However, if three or more components are listed then polar co-ordinates for the constructs and elements are given. These are calculated from their loadings on the components and can be used for plotting points for the constructs and elements on the surface of a sphere.

The SERIES program produces a consensus grid and an analysis of variance for a group of grids that are completely aligned by both element and construct. The consensus grid can then be submitted to the INGRID program for a 'picture' of the 'typical' group member.

1.12.3 RELIABILITY AND VALIDITY OF REPERTORY GRID

Bannister and Mair (1968) claim that the problems of bias and Hawthorne effects which bedevil most measurment techniques are almost negligible with Repertory Grid technique (RGT). Stewart and Stewart (1981) maintain that it enables one to extract a good deal of information about a respondent in such a way that the input from the observer is reduced to zero. However, the reliability of Repertory Grid is one of the most controversial issues concerning grid use. Kelly (1955) rejected the concept of reliability because an apparent low reliability may mean sensitivity to fluctuations in the functions measured. In fact, clinical users of the grid may deliberately choose constructs which register changes in mental states. Slater (1977) also believed that significance and reliability are inappropriate and inapplicable with Repertory Grid; he

regards the test of Repertory Grid as whether it is an appropriate instrument for investigating human construing. He also cautions that the very act of readministering a Grid tightens construing. Fransella and Bannister (1977) point out that stability is often assumed to be 'the normal state of affairs', and that the 'myth of unchanging man' has been perpetrated by trait psychology. Bannister and Fransella (1968) regard it as more sensible to regard 'reliability' as the name for an area of inquiry into the way in which people maintain or alter their construing. They cite evidence (Bannister, 1962) that certain types of constructs are used more stably than others.

Finally, Bannister & Mair (1968) point out that there is no such thing as the grid and, therefore, there is no such thing as the reliability of the grid. "A specific reliability coefficient would have to take into account the particular measure extracted from data supplied by the Grid, the type of experimental situation within which repeat grid data were obtained, and the general parameters which affect reliability coefficients in any grid context" (p. 156).

The same question arises with 'validity' as with 'reliability': Which grid, in what context, and used for what purpose? The number and manner of grids is, for practical purposes, infinite.

### 1.12.4 APPLICATIONS OF REPERTORY GRID

Traditionally, RGT has used the important persons in an individual's life as the elements. However, Kelly (1955) saw the potential of other types of elements for his 'Situational Resources Grid' which used 'problem situations' in a person's life as elements. The constructs were, 'the kind of people upon whom I might lean'. The intersects in the grid were marked in terms of whether or not the respondent felt that the person nominated to represent the role title would be helpful in the particular stress

situation denoted. Factor analysis indicated how the respondent grouped both his stressful experiences and his human supports.

Chetwynd (1973) stated that Repertory Grid can be used in practically any research project where it is useful to assess attitudes, feelings, opinions, etc. or to assess the effects on these matters. She used 'role titles' as elements (Chetwynd, 1976) in research to investigate sex differences in stereotyping the roles of wife and mother.

Whilst clinicians have used RGT to diagnose and to assess the effects of therapy, industrial psychologists have used RGT to assess, for example, the effects of training programmes (Smith & Ashton, 1975). Smith (1980) has also used RGT to analyse managerial jobs. He claims that because these jobs are less standardised than many operative jobs, the flexibility of RGT means that mental, emotional and personality characteristics can be considered for individual managers.

Stewart & Stewart (1981) have looked at business applications of RGT and they discussed in detail its use by counsellors, accident investigators, company doctors, trainers, quality controllers and market researchers.

Repertory Grid works on the theory that if you want to know what people think, ask them. RGT allows the interviewer to produce a mental map of how the interviewee views the world. The map is discussed with the interviewee on the assumption that most people can work out a solution to a problem once they know what the problem is.

In the area of stress research, Crump et al (1980) maintained that predesigned health and behavioural questionnaires had the serious disadvantage of either not including important stressors at work, or distorting the importance of those that were included. The use of RGT

in their research on occupational stress amongst air traffic controllers overcame this obstacle.

One reason that Repertory Grid is popular amongst the psychologists who use it, is that, despite its length as a technique, it is generally well received by respondents because it is personal and interesting. From the psychologists point of view, it enables him/her to 'stand alongside' the respondent, rather than aloof.

# CHAPTER TWO

# METHOD

## 2.1 SAMPLE

### 2.1.1 SELECTION CRITERIA

Ninety-one owner/operators of Christchurch businesses were interviewed. They had a wide range of varying sized trade, retail and wholesale businesses. Although there are considerably more men than women operating their own businesses, a conscious effort was made to obtain female respondents.

Respondents were selected according to the criteria that:

(a) they owned or co-owned a business, and spent at least 20 hours per week, on average, working in the business.

(b) they provided a service, or performed a trade job, or sold a retail or wholesale commodity, or provided more than one of the aforementioned.

(c) they were not working in a recognised professional capacity, that is following a profession that required a university qualification, such as law, dentistry, etc.

(d) the business employed fewer than 100 permanent, fulltime employees.

Age and length of time in the business were not criteria, amd neither was the apparent level of stress taken into consideration. At least 30 women and 60 men were sought, who were as evenly divided as possible into 'trade', 'retail or wholesale', and 'trade and retail' categories. Staffing levels between zero and 99, at any one time, were sought.

Despite the possible biases, the main method of sampling was by non-random referral (or snowball) sampling (Welch, 1975) not because the target population was proportionately small, but rather because using an aquaintance's name was considered to be the most effective

method of persuading people to take part in the research. Approaching small businesses without prior information would have been very time consuming, and it was not possible to know beforehand which ones were owner-operated.

The 'snowballing' technique involved obtaining initial referrals from four businesspeople known to the author. Each referred person could usually provide the names of between two and five more people who met the criteria. In Christchurch, as in any city, there are large numbers of self-employed people, but they are, by and large, a group who work very long hours and who have many demands on their time. During the interview, it was very important to form a good rapport with the respondent by carefully explaining the pupose of the research and giving the respondent undivided attention, because the snowball sampling technique relies on the interest and good nature of the respondents, and, apart from the initial four respondents, referrals were obtained after the interview when the respondent was in a position to recommend the research and the researcher. This method also had the advantage of allowing a possible respondent to make further enquiries about the procedure from the person by whom s/he had been referred. The sample eventually obtained consisted of 91 individuals who it was felt would provide a wide range of activities and circumstances.

### 2.1.2 RESPONSE RATES

There was a high reponse rate from the people approached to take part in the research:

119 people were telephoned by the author. Of these:

91 people completed the grid and questionnaire

16 people declined to participate in the research, mainly because they were too busy or for personal reasons, or they said they would ring back, but didn't.

7 people were willing to respond but either suitable arrangements couldn't be made for an interview, or they were unsuitable because they did not meet

selection criteria.

4 people did not keep the appointment because of illness, unforeseen circumstances, or because they forgot.

1 person was unable to concentrate for long enough to complete the grid, and was unable to remember what the ratings meant. He may have been unwell or on medication.

2.1.3 RESPONDENT CHARACTERISTICS

Of the 91 people interviewed, 61 were male and 30 were female. Seventeen males were in 'retail or wholesale' businesses; 26 were in 'trade' businesses; and 18 were in 'trade and retail' businesses. Twelve females were in 'retail or wholesale' businesses; 10 were in 'trade' businesses; and 8 were in 'trade and retail' businesses.

Forty-two of the respondents had been in their present businesses fewer than 7 years; 32 between 7 and 15 years; and 17 for more than 15 years.

For their highest educational qualification, 20 of the respondents had 3 years or fewer of secondary education; 18 had school certificate; 11 had university entrance; 3 had bursary; 18 had a polytechnic qualification; 6 had a university degree; and 15 had other qualifications such as trade certificates or Institute of Management diplomas.

2.2 DATA COLLECTION

2.2.1 RESEARCH INSTRUMENTS:

(a) The Repertory Grid consisted of 17 elements and 18 constructs which were selected by consensus from a pool of constructs and elements elicited from a sample of the respondents. (This procedure is described below). The elements were, 'situations that cause stress', and the constructs were, 'reasons for the stress'. (See Appendix A for a copy of the grid.)

(b) A questionnaire was constructed to obtain demographic information on the respondent's age, domestic situation, education, type of business, length of time in the business, previous employment, partnerships, family help in the business, number of hours worked and amount of holiday, staffing levels, and reason for being self-employed. There were also questions which required subjective assessments of the respondent's health and financial situation. (See Appendix B for a copy of the questionnaire.)

The grid and the questionnaire for each respondent were given the same number, but, in order to preserve the respondent's anonymity, this could only be linked with the respondent's identity from a separate book which was not kept with the rest of the data.

2.2.2 RESEARCH PROCEDURE

Possible respondents were contacted by telephone, the research was explained to them, and they were asked if they would consider participating. Many people were difficult to contact because they were either busy or out of the work place. However, when contacted, the majority agreed to participate, although it was sometimes difficult to arrange a time and place of their convenience. If a respondent had enough staff to make his/her timetable flexible, the interview usually took place in his/her office; if s/he was in constant demand, the interview usually took place in the evening, either at his/her home or at the researcher's home.

The first 10 people were used to elicit elements and constructs for the repertory grid. They included both males and females and both tradespeople and retailers. Each person was asked to think of situations at work that were personally stressful. The list did not need to be exhaustive. Each situation

was written on a separate small cardboard square. These situations were then presented to the person in random groups of three (triading) and s/he was asked to say what was common to two of the situations and different from the third situation. The Repertory Grid 'laddering' technique (Stewart & Stewart, 1981) was used to elicit core constructs: each time the person gave a reason why a particular situation was stressful, the researcher questioned why it was, until the respondent could give no futher reason. Then it was assumed that a 'core' construct had been reached and the respondent was asked for the 'opposite' of the construct (Kelly, 1955). The bipolarity of the constructs ensured that the person's own meaning of the construct had been captured. Each time a core construct was reached, it was read back to the person to confirm what s/he was saying. The procedure finished when the same core constructs were being produced repeatedly.

All of the 'stressful situations' and the 'reasons for stress' from these 10 people were content analysed (Babbie, 1979), and grouped to form a grid with 17 stressful situation (elements) and 18 reasons for stress (constructs). Both the elements and the constructs were deliberately wide categories, so that they could be interpreted by the wide variety of businessmen and businesswomen in whichever ways were pertinent for the individuals. The elements and constructs within the grid were not arranged in order of importance, but rather to separate similar elements or constructs. The grid was pre-tested on two respondents to ensure that each element was within the range of convenience of each construct; that is, the wording of the elements and constructs was refined until each construct could sensibly apply to each element. Each construct was examined separately to ensure that it was not excessively permeable or impermeable, vague or superficial, (Stewart & Stewart, 1981). Each element was examined separately to ensure that there was not overlap between elements.

The questionnaire was pre-tested on four business-people: male/female and trade/retail combinations to ensure that questions did not overlap. The questionnaire was deliberately worded simply to minimise reading and increase the speed of completion, as the author was very conscious that the total interviewing procedure was demanding for the respondents because of it's length. Questions could be clarified verbally, if necessary, as the questionnaire was completed in the presence of the researcher.

In the main data collection, 91 respondents completed both the grid and the questionnaire. Before starting the grid, it was explained to each respondent that, when working down a 'situation' column of the grid, they had to decide, if and when a situation was stressful, which of the 'reasons' contributed to that stress and how much, on a scale of 1 to 5. The 'reasons' on the left of the grid were very stressful and had ratings of '5', and the 'reasons' on the right were unstressful and had ratings of '1'. They needed to compare both ends of the construct to decide where they rated a 'reason'. Two examples were given. The word 'stress' was used in a very wide sense, from 'minor annoyance' to 'major problems', and the rating given was the subjective reaction of the respondent. The starting order for the columns was rotated for each respondent to prevent a fatigue factor affecting the last columns: the first person started on column 1, the second person on column 2,..... the seventeenth person on column 17, the eighteenth person on column 1, etc. Any situation which the respondent either did not perform or felt neutral about, was given ratings of '3' so that it did not produce any deviation from the mean. The researcher read each 'situation' and each 'reason' with the respondent and frequently alerted the respondent to the necessity of comparing both poles of the constructs. It was emphasised that there were no right or wrong answers. Respondents commented frequently, and often at length, as

they rated the elements. This enabled the researcher to gain additional insights into the problems that individuals encountered, and, thereby gain extensive quanlitative data. The researcher frequently asked what particular events individuals had in mind for the 'situations'. This knowledge enabled the researcher to clarify any ratings that seemed doubtful. It was important to check each rating as some respondents were occasionally inclined to confuse opposite ends of the scale, but, fortunately, this was easy to recognise by their overall reaction to an element. From time to time the respondent needed clarification of the meaning of a 'situation' or a 'reason'.

Respondents who had working business partners were interviewed in the context of the work performed by the respondent because, for example, one owner might work as sales manager and the other owner might be the financial manager. Work that was not performed by an owner was usually neutral in term of stress to him/her.

The questionnaire was completed after the grid, and the time to complete both varied between 45 minutes and 2 hours and 45 minutes, but usually took about 1 hour and 45 minutes. This included time for the respondents to make any further comments. All respondents seemed to relate easily to the 'situations' and 'reasons' used in the grid, and they appeared to enjoy completing the ratings; many respondents seemed to find the procedure therapeutic.

## 2.3 DATA ANALYSES

### 2.3.1 REPERTORY GRID ANALYSIS

The data from the repertory grids were averaged for all respondents using Slater's SERIES program. The consensus grid obtained from SERIES was then submitted to Slater's INGRID program. The principal components analysis produced by INGRID was used to construct a composite diagram for

the group of businesspeople showing which 'reasons for stress' contributed to which 'stressful situations'. These analyses were repeated for 14 subgroups. The consensus grids mean ratings for all 'situations' and all 'reasons' were also calculated, and these were compared within and between groups.

### 2.3.2 QUESTIONNAIRE ANALYSIS

The SPSSX FREQUENCIES program was used to compute frequencies for the questionnaire data, and subgroups were compared using the SPSSX CROSSTABULATIONS program with the Pearson r correlation coefficient option.

# CHAPTER THREE

# RESULTS

## 3.1 INTRODUCTION

The results of this research project explore the main stressors for small business owners, and also investigate why these stressors cause strain. They are described under two main section headings.

The first section (3.2) is based on the questionnaire data and contains a description of the sample in general terms and with relevance to their business backgrounds. The SPSSX FREQUENCIES program is used to compute frequencies for the data, and subgroups are compared using the SPSSX CROSSTABULATIONS program with the Pearson r correlation coefficient option. Conventions relating to the reporting of statistics are used as described in the Publication Manual of the American Psychological Association (1983).

The second section (3.3) is based on the information obtained from the Repertory Grid which deals exclusively with situations that cause str ss to people in small businesses and the reasons why they cause stress. Fourteen subgroups feature in the analysis: males, females, ages 26-35 years (AGE1), 36-45 years (AGE2), 46-55 years (AGE3), 56-65 years (AGE4), retailers, tradespeople, those whose domestic partners work outside the business (EXTRAINCOME), those whose domestic partners do not work outside the business (NOEXTRAINCOME), those with staff (HASSTAFF), those without staff (NOSTAFF), those with a working business partner (HASPARTNER), those without a working business partner (NOPARTNER), as well as the group of all 91 respondents. The data are computer analysed using Slater's SERIES and INGRID programs, and, where it is useful to compare construct and element means, t-tests are used. Where groups are compared, angular distances, grid

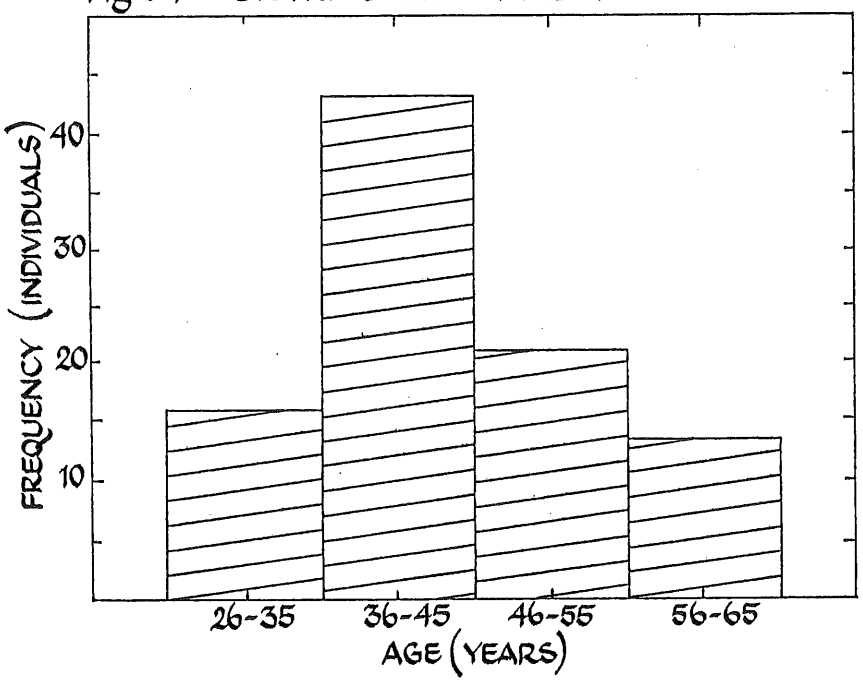
means and variance are shown in brackets in the order referred to.

## 3.2 BACKGROUND OF BUSINESSPERSONS

### 3.2.1 AGE AND SEX

The sample consists of 61 males and 30 females whose ages range from 26 to 65 years.

Fig 3.1 DISTRIBUTION OF AGES




### 3.2.2 EDUCATIONAL QUALIFICATIONS

Educational qualifications of the respondents are varied, with over 20 per cent having only two or three years of secondary education or less. There are no significant differences between males and females.

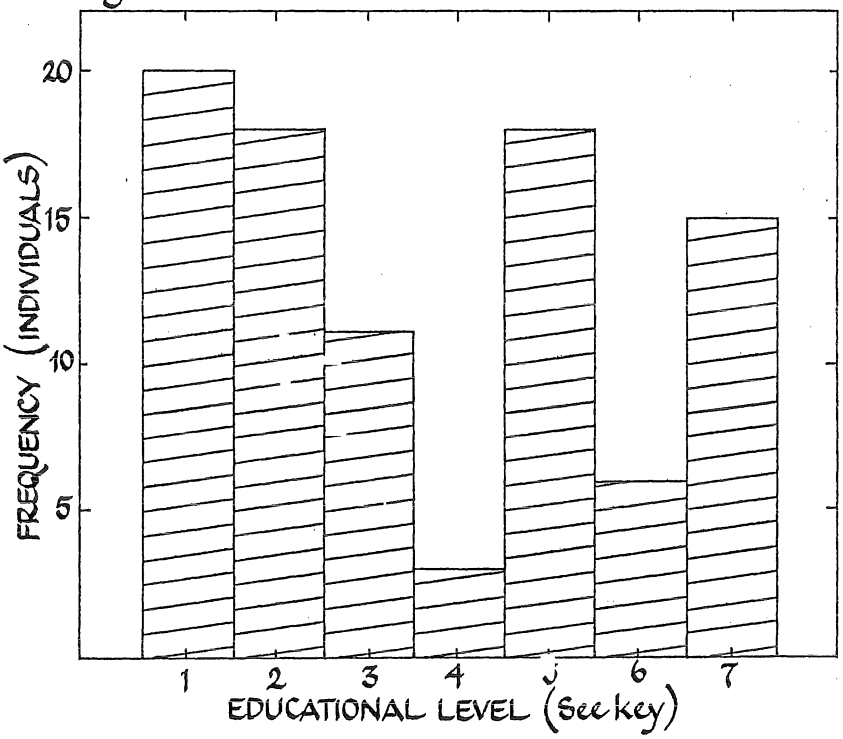
Because of the wide range of educational qualifications, the respondents bring a variety of skills to their work. Some respondents with little education find dealing with paperwork particularly difficult, whilst those with high qualifications may see their challenge in other areas. For example:

1. A ladies fashions retailer with one and a half

years secondary schooling finds paper work associated with GST particularly difficult to deal with.

2. At the other extreme, a hardware retailer with two Masters degrees, does not find the work challenging but is committed to the way of life because it gives him independence and a good financial return.

Fig 3.2 EDUCATIONAL BACKGROUNDS




Key for Fig 3.2

1. 2-3 years secondary education or less
2. School Certificate
3. University Entrance
4. Bursary
5. Polytechnic qualification
6. University degree
7. Other qualifications such as trade certificate or teaching diploma

### 3.2.3 DOMESTIC SITUATION

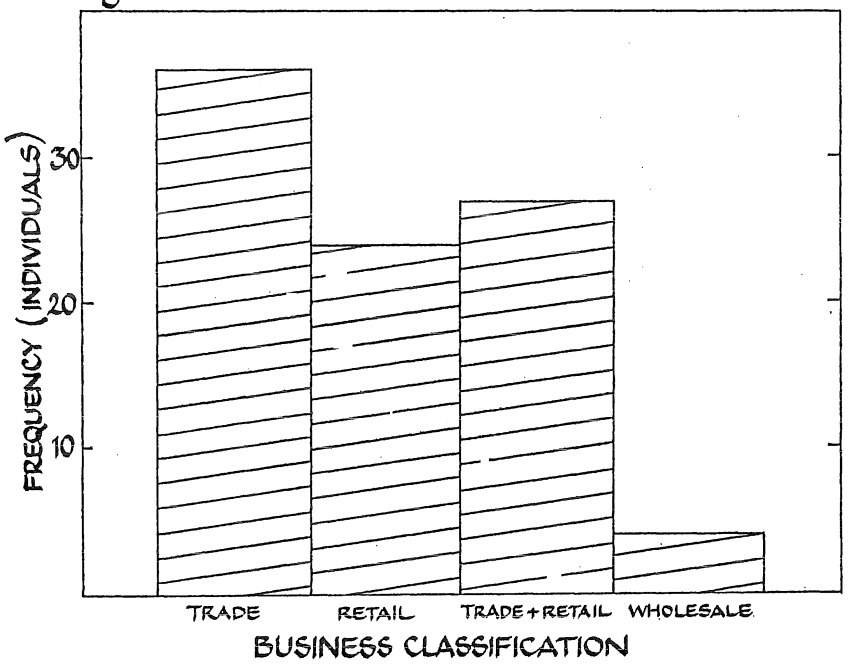
The majority of respondents have typical family

commitments. Eight-four have a domestic partner and 64 have dependent children. Thirty-two of the respondents have domestic partners who work outside the business, and thereby provide a second family income. However, significantly more of the female respondents have working domestic partners, ($r=.17$, $P<.05$).

### 3.2.4 TYPE OF BUSINESS

The businesses are classified as shown below, with tradespeople comprising the largest single group.

Fig 3.3 TYPES OF BUSINESS




'Trade' businesses include those performing a service such as contracting, and also those manufacturing a product such as dies. 'Retail' businesses sell products to the public. 'Wholesale' businesses sell products to tradespeople. 'Trade and retail' refers to businesses such as picture framing, berryfarming, coffee bars, etc.

| The distribution is: | Males | Females |
|---|---|---|
| Trade | 44% | 30% |
| Retail | 21% | 37% |
| Trade and retail | 30% | 30% |
| Wholesale | 5% | 3% |

### 3.2.5 YEARS IN BUSINESS

Many respondents commented that it took about 7 years to establish a business. The length of time in the present business is:

Fewer than 7 years - 42 respondents
Between 7 & 15 years - 32 respondents
More than 15 years - 17 respondents

Therefore, the sample is biased towards newer businesses.

### 3.2.6 PREVIOUS EMPLOYMENT

Respondents came to the present business from a wide range of situations. Some had been employed in similar work others employed in different work. Some had been self-employed in similar work and others had been self-employed in different work.

Table 3.1 PREVIOUS TYPE OF WORK AND EMPLOYMENT STATUS — FREQUENCY (INDIVIDUALS)

| | PREVIOUSLY SELF-EMPLOYED | NOT PREVIOUSLY SELF-EMPLOYED |
|---|---|---|
| PREVIOUSLY IN DIFFERENT TYPE OF WORK | 14 | 28 |
| PREVIOUSLY IN SAME TYPE OF WORK | 14 | 35 |

A variety of reasons were given for their choice of business. For example:

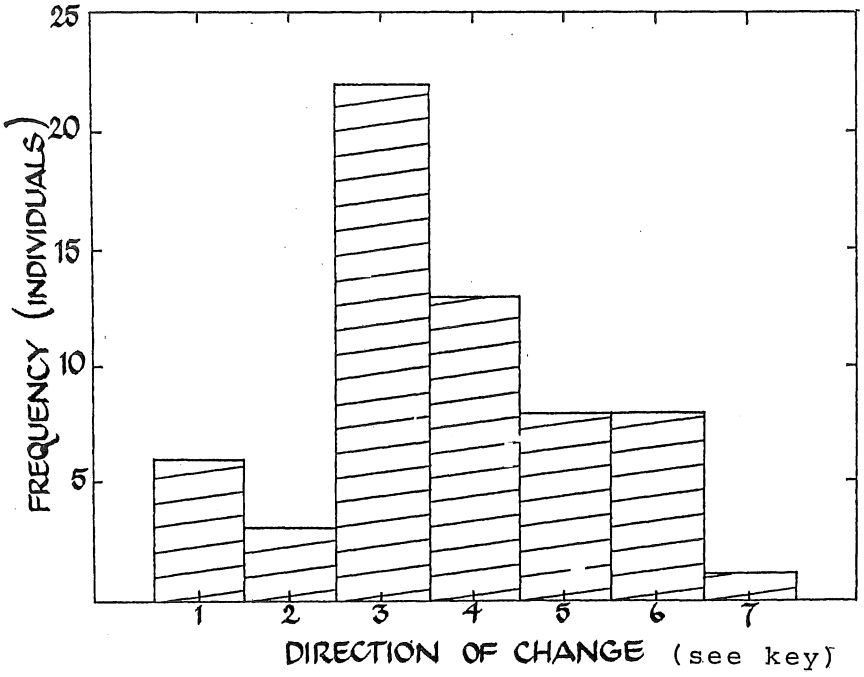
1. An ex-mechanic had opened a photography

business rather than a business as a mechanic because, even though the capital outlay is approximately the same, he considered photography to provide a healthier lifestyle.

2. A picture framer had previously owned a supermarket, but chose picture framing for a better all round lifestyle.

Where a change in occupation had occurred (61 respondents), the diagram below shows in which direction the change occurred.

Fig 3.4 CHANGE IN TYPE OF WORK




Key for Fig 3.4

1. Professional to trade
2. Professional to retail
3. Trade to trade
4. Trade to retail
5. Retail to trade
6. Retail to retail
7. Unskilled to retail

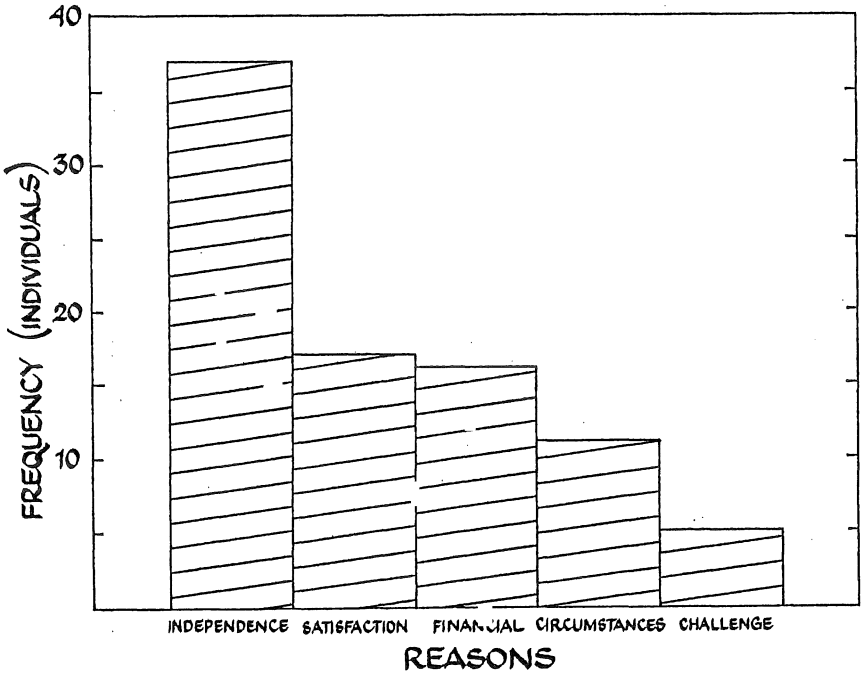
### 3.2.7 REASONS FOR SELF-EMPLOYMENT

The respondents had become self-employed for a variety of reasons. The most common one was to have independence to work when they wanted and how they wanted (37 respondents). For example:

> A hotel owner quipped,"only by being self-employed do you have the right to work seven days a week".

Closely related to 'independence' is 'satisfaction' which was often explained as "the satisfaction of doing things one's own way".

Fig 3.5 REASONS FOR BECOMING SELF-EMPLOYED




Financial considerations were also a reason:

> An electrical contractor who started his own business to improve his financial base reported, "I've earned more than I ever dreamed possible".

Sometimes self-employment was circumstantial rather than chosen:

> An electrical wholesaler whose husband had died and left her in a precarious financial situation stated that if she hadn't taken over the business and made a go of it she would have lost the business and her home.

Although the reasons for becoming self-employed are not significantly different for the age groups, males were more likely to have become self-employed for 'independence' and females were more likely to have become self-employed for 'challenge' or because of 'circumstances'($r=.38$ $p<.0001$).

### 3.2.8 WORK SATISFACTION

The majority of respondents (57) enjoy their work and there are no significant differences between the sexes or age groups. However, enjoyment is significantly correlated with the number of years in the present business ($r=.18$ $p<.05$), showing that enjoyment decreases with the number of years in the business. This may stem from an aging factor or it may indicate a decline in 'challenge', and boredom with routine.

Table 3.2 WORK SATISFACTION AND YEARS IN THE BUSINESS – FREQUENCY (INDIVIDUALS)

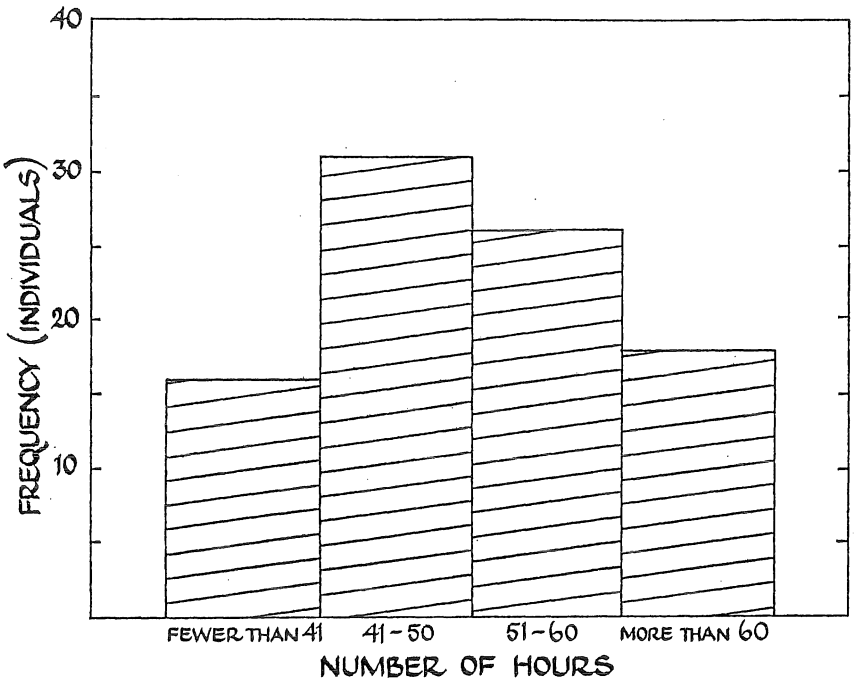
| | ENJOY WORK | USUALLY ENJOY WORK | SOMETIMES ENJOY WORK |
|---|---|---|---|
| FEWER THAN 7 YEARS | 31 | 11 | |
| 7-15 YEARS | 16 | 13 | 3 |
| MORE THAN 7 YEARS | 10 | 6 | 1 |

### 3.2.9 HOURS WORKED

The mean number of hours worked per week is 53, with a minimum of 20 hours and a maximum of 82 hours. Some of those who appear to be more financially secure work fewer

hours.

Fig 3.6 HOURS WORKED WEEKLY




There is, however, a significant difference in 'hours worked' between the sexes ($r=.2$, $p<.05$), showing that females work fewer hours than males. Conversation with the females indicated that the reasons for this are family responsibilities.

There are no significant differences in 'hours worked' either by the different age groups or by those whose domestic partners do not work.

3.2.10 HOLIDAYS

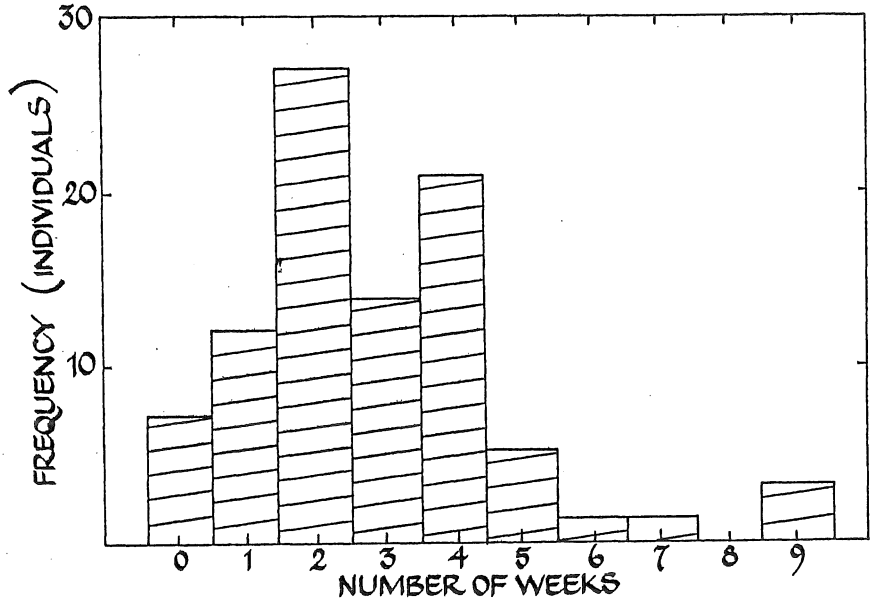
Although a few people have generous amounts of holiday, many respondents said, "I suppose I have two weeks holiday" but when questioned further it was a few years since they actually had two weeks holiday. For example:

> An antique dealer has no official holidays but "stays with friends" when "collecting antiques out of town".

The median is 2 weeks holiday per year with a distribution

as shown below.

Fig 3.7 LENGTH OF ANNUAL HOLIDAY




There are no significant differences in number of weeks holiday taken by the different age groups, but males take a significantly greater number of weeks holiday than females ($r=.2$, $p<.05$). This mean is probably affected by a few males in very successful businesses, whereas the females tend to be in fairly 'humble' businesses.

3.2.11 PARTNERSHIPS

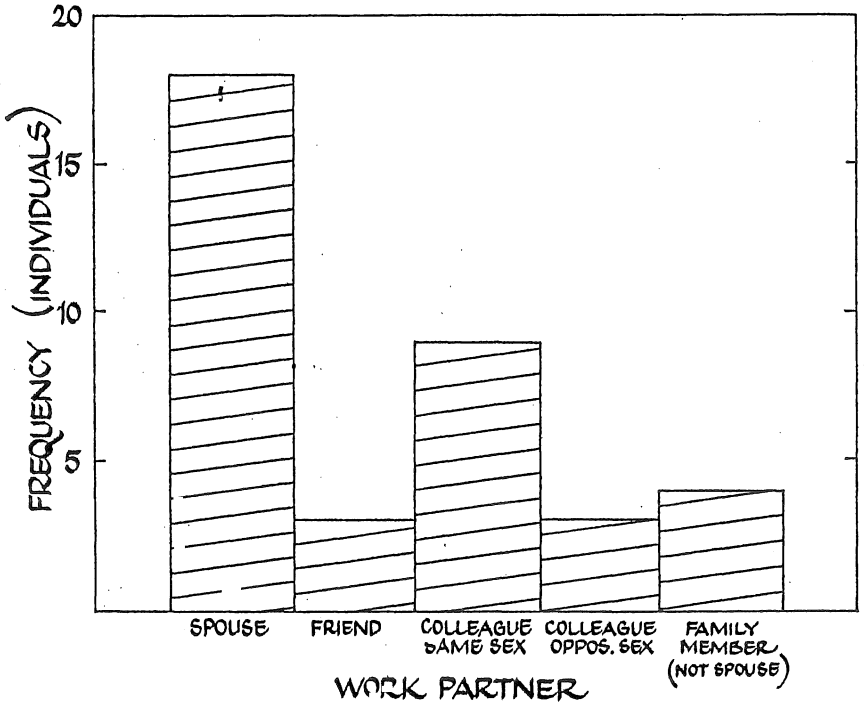
Forty per cent of the sample have working business partners, and 60 per cent of these are a member of the family. Many have a spouse as a 'paper' partner for taxation reasons, but, for the purposes of this study, these are not counted as partners. Others have friends or people they once worked with as business partners.

Partnerships are formed for a variety of reasons. For example:

> One effective arrangement consists of two females who combined their adjacent antique shops into one premises to economise on electricity, etc.

Each spends half the week in the shop and the rest of the week collecting antiques. They sell items in the shop on behalf of each other, and agree not to arrive with goods during the other person's shop hours.

Fig 3.8 CLASSIFICATION OF WORK PARTNER



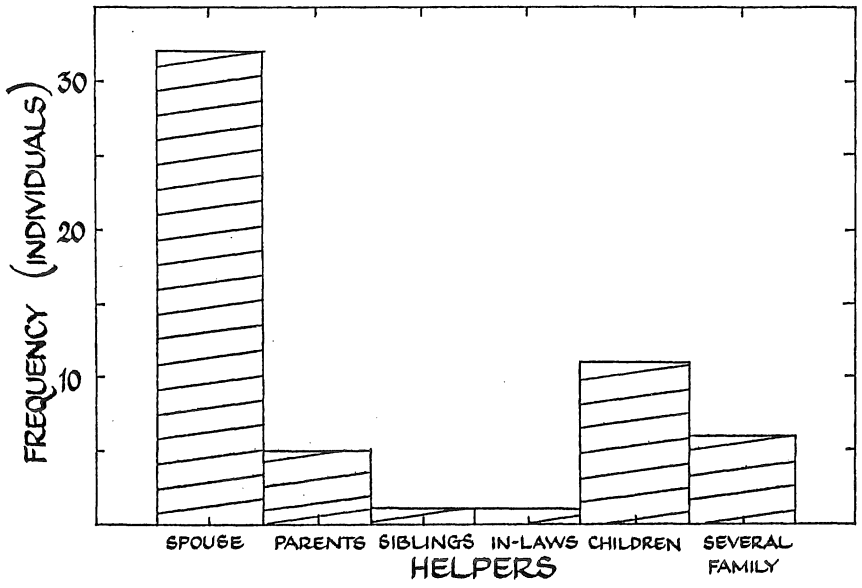

Usually the partner has a different area of expertise (67%). For example, a quantity surveyor has a construction engineer as a partner in a building company.

In 70 per cent of the partnerships, both people had started the business together.

3.2.12 HELP IN THE BUSINESS

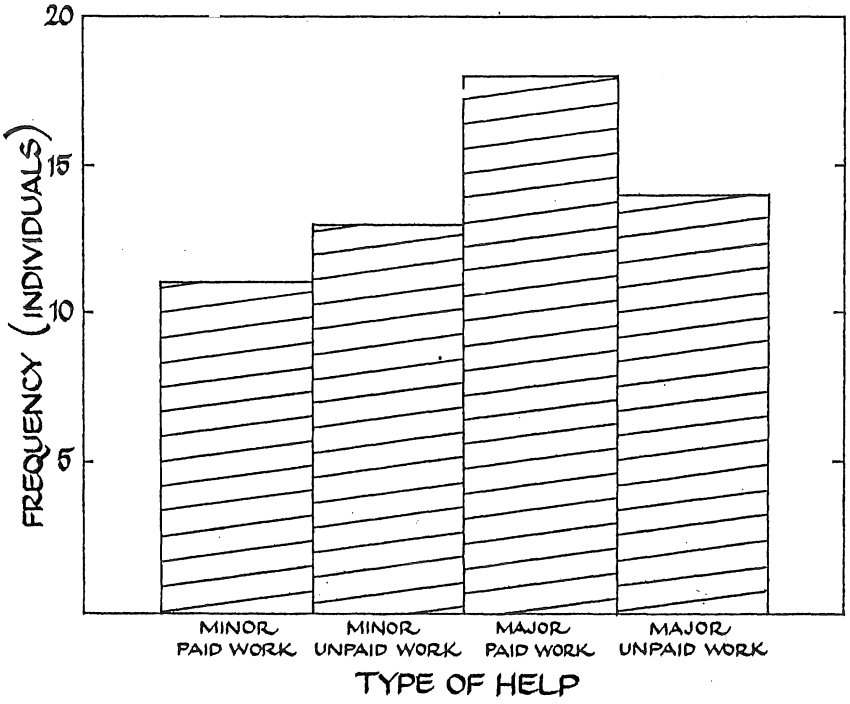
For most respondents (61%), some help from family members is crucial in coping with a large or variable workload. Family help comes from a variety of sources:

Fig 3.9 SOURCES OF EXTRA HELP IN BUSINESS




This help divides approximately equally into paid work and unpaid work.

Fig 3.10 TYPE OF HELP IN BUSINESS

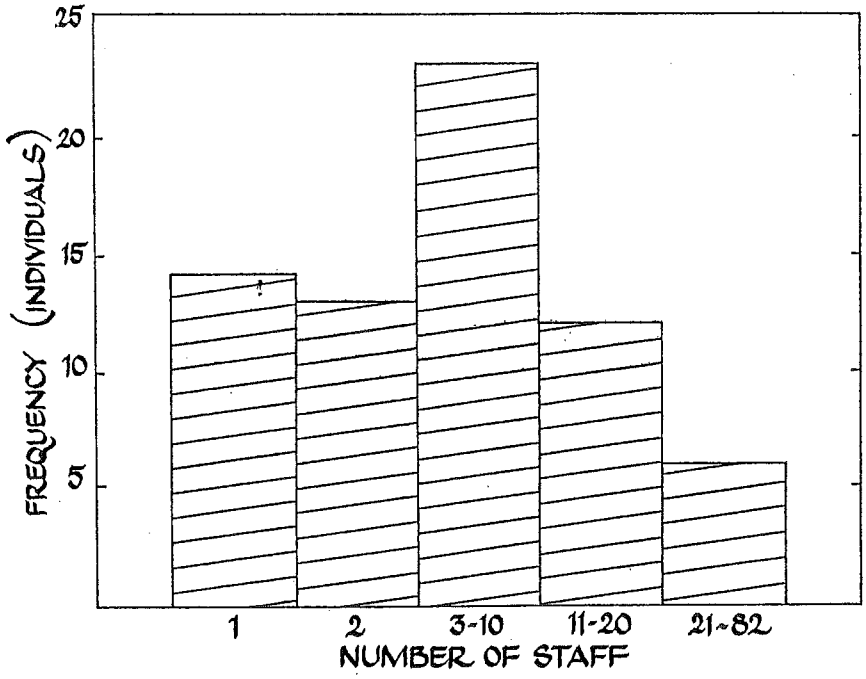



3.2.13 STAFF

The sample has a wide range for the number of fulltime staff employed. Twenty-five per cent do not employ any

fulltime staff, and 6.5 per cent have more than 20 staff.

Fig 3.11 STAFFING LEVELS OF BUSINESS




Some respondents do not employ staff because they contract work out. For example:

> A magazine publisher who does not want to be bothered with staff has a sales representative with 50 per cent shares in the business, and contracts out the printing work, delivery, etc.

Part-time staff are difficult to categorise. Usually one or two are employed by a small retailer for a couple of hours per day. Some businesses have a seasonal need for part-time staff. For example:

> A berry grower has about 200 part-time staff for picking, but only two fulltime staff for the whole year.

3.2.14 HEALTH

Sixty-one respondents feel that being in business has become more stressful since they first became self-employed. There are no significant differences across

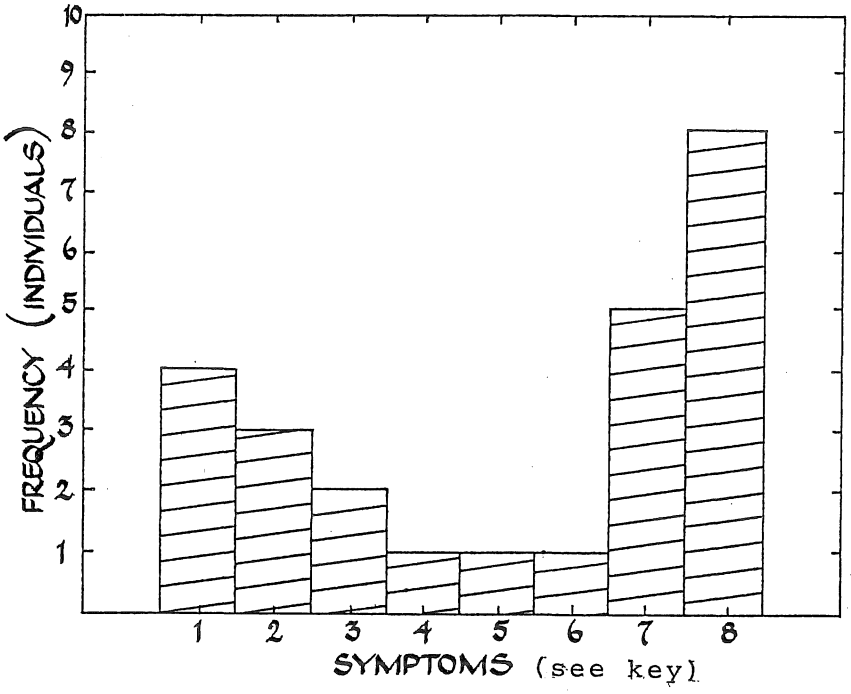
age groups or types of business. Long hours and worry about the future are the most often mentioned cause of stress and health problems. For example:

1. A dairy owner who works 82 hours per week and cannot afford any help has, since taking over the business, developed a heart murmur which his doctor has told him is a result of the long hours that he works.
2. A contractor who has cash flow problems complained of sleeplessness, stomach pains and headaches.
3. A service station owner who has reduced his hours to 75 per week since he decided to sell the business is under a lot of stress because of deregulation of the petrol industry. He is aware that his street location is deleterious to his health, and he also hates the road noise. When asked to describe any symptoms, he declared that he felt "as if I need two heads".

However, the majority of people do not admit to health problems. Thirty-six per cent of respondents claim excellent health, 54 per cent report good health, and 10 per cent say their health is 'fair'. Twenty-six per cent of respondents believe that business stress is causing their health to suffer. There are no significant differences between the sexes or the age groups in assessment of health or estimation of whether their health is suffering. Neither is the assessment of health significantly related to the number of hours worked.

Of the 25 people who describe health problems, the frequency of symptoms is shown below. A few respondents reported multiple symptoms. There are no significant differences between the sexes in the types of health problems reported.

Fig 3.12 TYPES OF HEALTH PROBLEMS




Key for Fig.3.12

1. Fatigue
2. Depression
3. Anxiety
4. Insomnia
5. Headaches
6. Heart murmur
7. High blood pressure
8. Several symptoms

3.2.15 THE FUTURE OF THE BUSINESS

The majority of respondents (52) rate their future business prospects as 'good' but many added that they have to believe that to motivate themselves because of their financial commitments to the business.

Thirty-three respondents feel that their business future is 'reasonable'. For example:

> A contractor who had recently had a fire, which he believed was arson, on the business premises remarked that a popular business adage held that

financially one could only survive one such mishap.

Six respondents believe their business future to be 'poor'. Two of these are car dealers who have a lot of money tied up in secondhand cars for which the market is declining. Two have major rental increase problems. Two have debt collecting problems.

Thirty-five respondents stated that they would like to sell their businesses. Of these, 10 respondents consider that their businesses give a fair financial return and 25 think that the financial return does not reflect their effort and investment. The desire to sell the business is significantly positively correlated with not considering that it gives a fair financial return ($r=.19$, $p<.05$).

## 3.3 REPERTORY GRID ANALYSIS

### 3.3.1 THE 'STRESSFUL SITUATIONS' GRID

Slater's SERIES program was used to average the group of individual businesspersons' grids into a single 'consensus' grid representing a 'typical' businessperson. This was achieved by calculating a mean for each cell in the grids for all 91 respondents taken together.The new grid was then analysed using Slater's INGRIL 72 program. INGRID performs a principal components analysis, and the options for obtaining the construct-construct, construct-element and the element-element interrelationships were used. These were given both as correlations and as angular distance. For example a correlation of 0.932 is equivalent to an angular distance of 21.26 degrees and a correlation of 0.256 is equivalent to an angular distance of 75.14 degrees. Throughout this section relationships are reported as angular distances. A graph for converting angular distances to correlations is given in Appendix C. Where groups are compared in terms of angular distances, tests of significance are not applied as this is not usual in repertory grid methodology.

### 3.3.2 STATISTICAL ANALYSIS OF THE GRID

The principal components analysis does not show which 'situations' and 'reasons' cause most or least stress, but which 'reasons for stress' differentiate most effectively between the 'stressful situations' in the businessperson's world. Therefore, the 'reasons for stress' after which the components are named are those on which some 'situations' rate very high and others rate very low. The purpose of the principal components analysis is to enable us to see how the businessperson perceives his/her world and how s/he categorises the stressful situations in his/her life, and this is represented visually by means of the two-component composite diagram. The relations between constructs and elements expressed in degrees allow us to see which 'reasons for stress' contribute to which 'stressful situations'. The angular distances between constructs enable us to gain insights into which 'reasons for stress' are closely related in the businessperson's mind. The inter-element relations expressed in degrees enable us to see which 'stressful situations' are perceived as related to one another.

There are many ways of assessing 'stress', and it is very difficult, if not impossible, to find an absolute measure of stress. For example, Kanner et al (1981) compared two modes of stress measurement for 'daily hassles and uplifts' versus major life events. Similarly, in this business research project some situations such as 'spending a lot of time at work' are highly stressful only for specific reasons and these feature in the principal components analysis. They tend to be similar to Kanner et al's 'daily hassles' because there are only a few contributing causes. Other situations such as 'trying to collect debts' have high grid means because they are stressful for many reasons and tend to be similar to Kanner et al's major life events because they have many contributing causes. Because the latter are high on many 'reasons' they will

not be highly differentiated in the principal components analysis. Therefore, another part of the statistical analysis is to obtain the consensus grid means and variance for both elements and constructs and compare element means between groups to discover which 'stressful situations' receive high ratings on many 'reasons', and to compare construct means between groups to discover which 'reasons' contribute to many 'situations'. Construct means are only useful for 'between group' comparisons, not 'within group' comparisons, because for some constructs, the grid rating '1' has a low stress interpretation, and for other constructs, the grid rating '1' has a positive interpretation. For elements it should be remembered that all situations are stressful, and the ratings show how stressful. Again the means are more useful for 'between group' comparisons, rather than 'within group' comparisons, because the grid is descriptive rather than having calibrated scales. As the differences between both element means and construct means between groups do not reach the level of statistical significance using t-tests, they will be used only to suggest possible trends when these are supported by interview information or the results of other research.

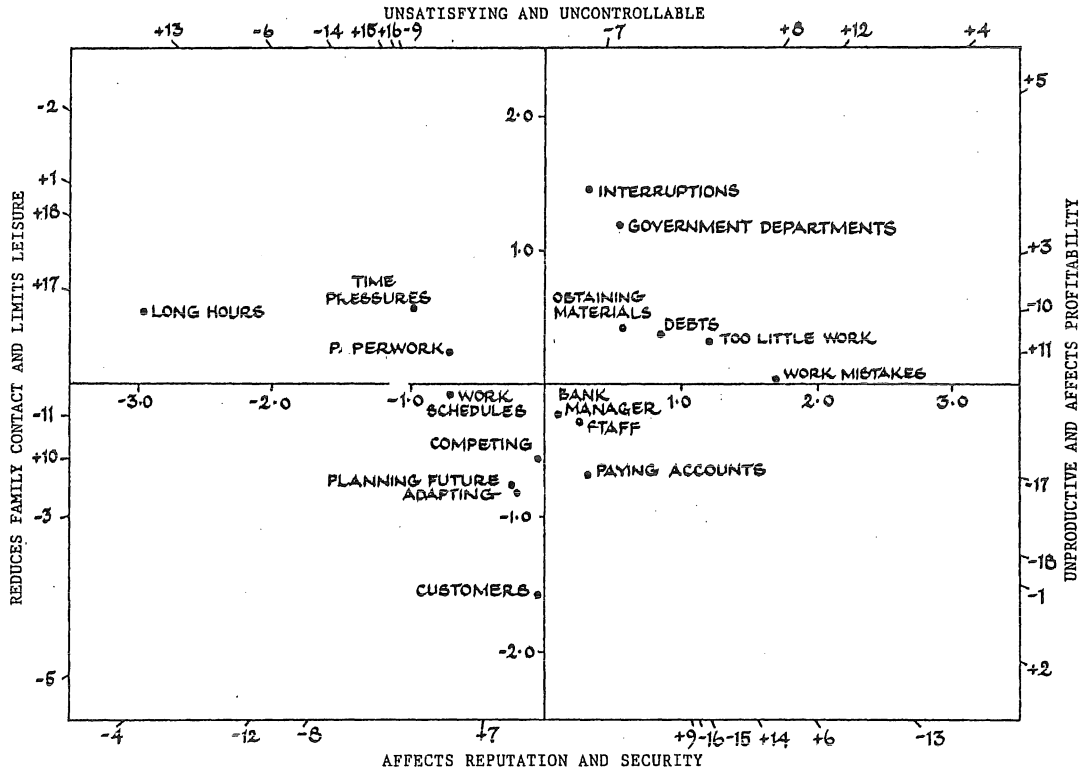
Consensus grids are used to investigate differences between the age groups, males and females, tradespeople and retailers, those who have staff and those who do not, those who have a working partner and those who do not, and those whose domestic partners work outside the business and those whose domestic partners do not.

### 3.3.3 CONSENSUS GRID FOR ALL BUSINESSPEOPLE

The INGRID output of the consensus grid for all 91 respondents shows that six components are significant, but as the first two components account for nearly 64 per cent of the variance, a two-component composite diagram (figure 3.13) is considered most relevant in demonstrating the relationship between the elements and the constructs.

The component loadings for each element and for each construct indicate their contribution to the total variance and are used as the co-ordinates for plotting the respective points and axes. Many of the construct and element labels have been abbreviated to fit the diagram space, and the construct numbers appear on the perimeter of the diagram with the 'stressful' pole shown as positive and, opposite to it, the 'unstressful' pole shown as negative.

FIG. 3.13 COMPOSITE DIAGRAM FOR ALL BUSINESS PEOPLE




The principal components (see Appendix D) are important because they comprise the constructs which the respondents use to differentiate most effectively between the stressful work situations. Figure 3.13 shows that they distinguish the stressful situations in their lives largely in terms of their ability to 'reduce family contact' and 'limit leisure time' (first component). The oposite end of this component shows that they also distinguish stressful situations in terms of their ability to reduce productivity and affect

profitability. 'Long hours', 'time pressures' and 'paperwork' are most prominent in reducing personal time but, by implication, are both productive and profitable. 'Work mistakes', 'too little work' and 'trying to collect debts' are most detrimental to productivity and profitability.

The constructs accounting for most variance with the second component are 'it is unsatisfying', 'it is uncontrollable', 'it affects my reputation' and 'it affects my security'. The situations 'dealing with interruptions' and 'dealing with government departments' feature as both unsatisfying and uncontrollable (as well, as unproductive and unprofitable on the first component). 'Dealing with clients/customers' is the most important situation affecting reputation and security, even if it is not considered highly productive overall. Although dealing with customers is stressful because of the awareness that it can affect reputation and security, it is interesting to note that it is both satisfying and controllable. 'Planning the future' and 'adapting to changing business conditions' are also important to reputation and security. They are also considered to be both satisfying and controllable. Although 'affects reputation' and 'affects security' are closely associated, 'affects reputation' is more important in differentiating between the situations, indicating that 'reputation' is not only important because of its pertinence to attracting business and hence to security. The close correlation (41.5°)between constructs 'it affects my reputation' and 'it affects my self-esteem' suggests that a good reputation also increases self-esteem as well as security.

By placing a straight line between opposite ends of any construct on the perimeter of the composite diagram, for example betweeen +8 and −8, each 'stressful situation' can be related exactly to each 'reason for stress'.

The situations 'planning work schedules', 'dealing with the bank manager' and 'supervising staff and dealing with staff problems' are not greatly differentiated in terms of the reasons for stress.

Angular distances between constructs

The INGRID output provides correlations and angular distances between constructs. Apparently the long hours (the average is 50 hours per week) worked by many people in small businesses are a source of stress in the family even though they are productive. This is indicated by a group of constructs about personal life which is formed by 'it causes problems at home' being closely correlated with both 'it reduces contact with my family' (42.75°) and 'it limits my leisure and/or social life' (34.26°)

The constructs, 'it reduces business productivity', 'it is unsatisfying', 'it requires skills that I do not have' and 'I have no control' also form a correlated cluster which indicates that situations which reduce productivity, either because of lack of appropriate skills or because they are controlled by other people, cause dissatisfaction.

Inter-element relations

The INGRID output also gives inter-element relations expressed in degrees. This shows elements 'trying to plan my future', 'adapting to the changing business conditions' and 'competing with other businesses' to be closely correlated. Obviously future success is seen as very much depending on whether the respondents can adapt to the present economic changes by competing effectively with other businesses.

Another correlated cluster consists of the elements 'trying to collect debts', 'having too little work or business' and 'trying to obtain products/materials'. These situations are perceived as similar because failure in any of these areas represents a disruption to the cash flow, as well as

time spent unproductively.

'Dealing with interruptions' and 'dealing with government departments' are closely correlated and again refer to unproductive time, but, also time that is demanded by other people. Obviously dealing with government departments is regarded as an interruption that interferes with productive work, even though it is not as frequent as general interruptions.

The cluster of elements 'working under time pressures', 'spending a lot of time at work' and 'planning work schedules' are closely correlated and although productive, they are also seen as eroding personal time.

Comparison of element means

As opposed to the situations that are stressful only for specific reasons and feature in the principal components analysis, for example 'long hours', 'customers', and 'interruptions', the situations that have high grid means, such as 'work mistakes' (2.99), 'trying to collect debts' (3.01), and 'too little work' (3.09), are stressful for several reasons. These situations appear to be less frequent but potentially more serious. It is interesting to note that although all the situations elicited for the grid have a financial aspect to them, the group with the highest means are more directly concerned with financial stress.

'Spending a lot of time at work' has the lowest mean (2.70) and the most variance (1.76) for this group, because it is only stressful for the specific reasons, 'it reduces contact with my family', 'it limits my leisure/social life', and 'it causes problems at home'.

The situations 'supervising staff and dealing with staff problems' and 'dealing with the bank manager' are relatively minor stresses, both in terms of general reasons

and specific reasons.

Comparison of construct means

The 'reasons for stress' with the highest general means are 'it is a responsibility' (3.75) 'it is unavoidable' (3.45) and 'it is always present' (3.34), indicating that these 'reasons' apply to many situations. There is an over-riding sense of personal responsibility for dealing with the stressful situations which relate to staff, customers, creditors, and family. Many of these situations are seen as both 'always present' and 'unavoidable'.

Various subgroups that might be expected to differ in terms of stress were also analysed. The trends described above are similar for all subgroups of the population interviewed, but composite diagrams are shown for several of these groups, and results relating to the important features and differences for these groups follow. Because the principal components and the positions of the constructs around the perimeter differ in each composite diagram, it is not possible to make a visual comparison of the positions of the 'situations'. Again it is emphasised that the differences between construct and element means between different groups did not achieve statistical significance, and, therefore, all differences will be described as trends.

3.3.4 CONSENSUS GRID FOR MALES

Comparisons are made between the grid for males and the grid for females in both this section and the next section where the consensus grid for females is described.

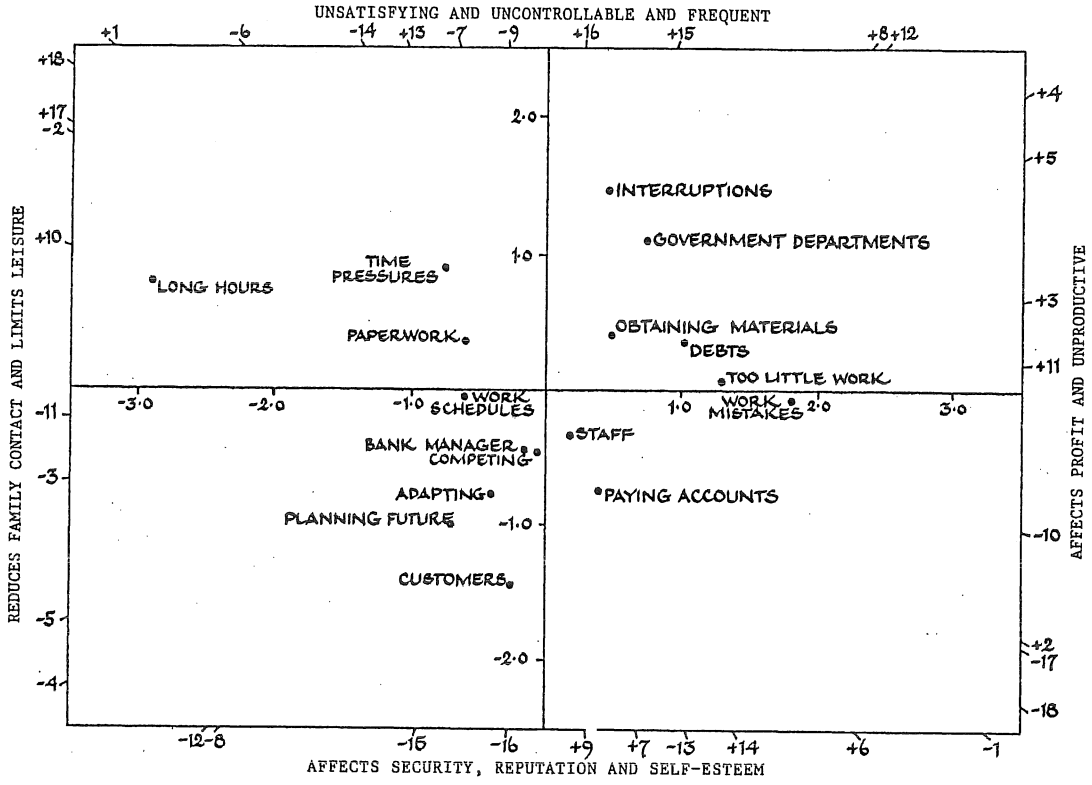
The INGRID output for the male consensus grid shows six components are significant, with the first two accounting for over 62 per cent of the variance.

The principal components (see Appendix D)

The composite diagram shows that males differentiate

between the stressful situations more in terms of 'security' than 'reputation', suggesting that they see their security depending on their business more than females do.

FIG. 3.14 COMPOSITE DIAGRAM FOR MALES




Comparison of construct means

The reason, 'it affects my security' has a higher mean for males than for females, (cf.3.08 with 2.80) showing that males see the stressful situations as potentially more threatening to their security, particularly 'trying to plan my future' which is considered important to security. Males also have higher means and more variance than females for 'it affects profitability' (cf. 3.37 & 1.38 with 3.15 & 1.28) and 'it reduces business productivity' (cf. 3.02 & 1.24 with 2.81 & 1.06). This demonstrates that they feel that more situations potentially affect their business viability, particularly 'trying to collect debts', 'dealing with work mistakes' and 'having too little work/business', all of which are less stressful for females.

Comparison of element means

In comparison with females, males have a higher mean and more variance for 'paying accounts' (cf. 3.02 & 1.61 with 2.90 & 1.24) revealing that they find it more stressful for specific reasons, particularly 'it affects my reputation', 'it is a responsibility' and 'it affects my self-esteem'. None of these reasons are highly correlated with 'paying accounts' for the female sample.

> A contractor cited not having the money to pay accounts affecting his reputation as "the most stressful factors in the whole grid".

There is a variety of reasons for the difficulties in paying accounts. For example:

> 1. Many retailers cited rental increases as causing difficulties. One butcher claimed a recent increase of 75 per cent in rental, while most neighbouring shops had between 80 and 120 per cent increases. He hoped to sell his business and retire before land tax further increased his overheads.
>
> 2. A hardware retailer's new landlord had just increased his rent by 200 per cent. The retailer hoped to struggle on until the lease expired in two months and then close down, as the new rental made the business unsaleable. Closure meant a loss of the $15,000 that he had paid in 'goodwill'.
>
> 3.The majority of retailers entered their businesses undercapitalised. A greengrocer reported that he had talked the bank manager into lending him all the money to buy his business. With house and shop repayments totalling $650 per week, he was just "holding his own" and they lived on his wife's wages.

Males also have a higher mean and more variance than females for 'competing with other businesses' (cf. 2.97 &

1.43 with 2.77 & 1.21) which shows that they find it more stressful than females for specific reasons, particularly 'it is always present'. For example:

1. With the increase in unemployment, many tradesmen reported increasing competition from 'one man bands' opening up. A wrought iron worker claimed that these take a significant amount of work from established engineers in his line of business.
2. With the reduction of work in Christchurch, some tradespeople are attempting to compete with North Island contractors, by opening or expanding Auckland and Wellington branches. One large electrical contractor in such a position said that his accountant advised him that it was not practical to chase the work presently done by smaller electricians as this would "sharpen the precipice off which I will drop". He declared that "the tender market is inhabited by idiots who keep reducing their profits".

Males have a higher mean but less variance than females for 'dealing with government departments' (cf. 3.01 & 1.53 with 2.77 & 1.61)which indicates that they find it more stressful for a lot of reasons, particularly 'it is unsatisfying' 'it requires skills that I do not have' and 'it is uncontrollable'. For example:

1. A chemist, referring to the trauma of dealing with government departments, cited statistical forms as being much more complicated and requiring exact measurements for shelving space etc. because of the threat of a $10,000 fine for wrong information. He claimed that the last form cost him $700 in accountants fees. Now all his information is kept on computer, but the advent of GST and ACC makes it impossible for him to do his own returns and his accounting fee jumped from $1500 to $5000 last year.

2. One menswear retailer claimed many of the inspectors from government departments are "dictatorial and high-handed".
3. Small business owners were described by a die manufacturer as "unpaid government employees collecting money for the Government".
4. Government employees are "in a paper world not the real world" according to a wrought iron worker who went into hospital last year when he lost part of his thumb. Upon returning home he was penalised for late payment of taxes; his reasons were not considered to be a good excuse.
5. A camera shop retailer nearly "reached his limit" when he was audited twice by GST inspectors and once by the IRD in the same six month period as a family 'cot death'.
6. To a hotel owner, GST represents "one more girl behind the counter, and is a real killer of profitability".

Inter-element relations

For males the situations 'trying to plan my future' and 'adapting to the changing business conditions' are more closely related than for females (cf. 48.7° with 66.1°) meaning that they see their future security as depending on their ability to adapt to the changing economic environment. For example:

An accountant who had sold his house and moved into a flat in order to buy a service station three years ago had done so specifically in anticipation of deregulation of the petrol industry. With careful planning of which products to sell such as fruit drinks and clothes, he hoped to be in a good position to sell to an oil company when deregulation occurred, and thereby obtain financial security.

Summary

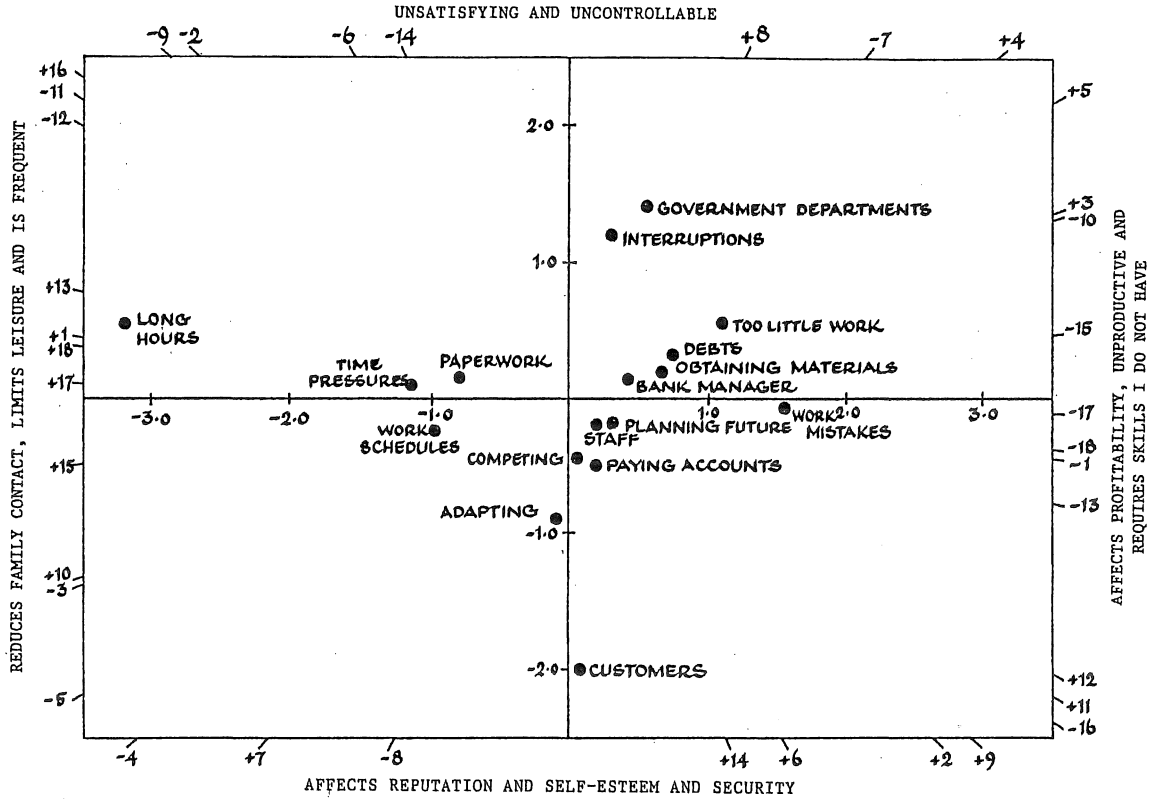
The results for males show a strong emphasis on 'security',

particularly how it affects the future. Associated with this is concern with the financial aspects of the business and how viability is affected by competition from other businesses. They are inclined to rate themselves personally in terms of financial success. Bureaucratic demands are also a major stress both financially and timewise.

### 3.3.5 CONSENSUS GRID FOR FEMALES

The INGRID output of the female consensus grid shows eight components are significant and the first two account for over 63 per cent of the variance.

FIG. 3.15 COMPOSITE DIAGRAM FOR FEMALES




The principal components (see Appendix D)

The composite diagram for females shows that for the first component, 'it is a frequent problem' is closely associated with 'it reduces contact with my family' etc. The angular distance between these two 'reasons' is also much closer than for males (cf. 40.26° & 54.60° ). Females obviously consider that reduced contact with their families is more frequently a problem than do males. The first component shows that 'it require skills that I do not have' is also a reason that differentiates the stressful situations for females, and is more closely correlated with 'it reduces business productivity' than for males (cf. 41.03° & 53.36°). This means that females are more inclined to evaluate situations in terms of having the

appropriate skills to deal with them, and, the situations that tax their skill most are, 'trying to collect debts,' 'dealing with the bank manager' and 'having too little work/business'.

The second component shows that 'it affects my reputation' more effectively differentiates the stressful situations than does 'it affects my security', which is the reverse of the order for males, and indicates that for females 'reputation' is more important than is 'security'.

Comparison of construct means

For females 'it reduces contact with my family' has a higher mean and less variance than for males (cf. 2.57 & 1.35 with 2.30 & 1.48), indicating that it is a stressful reason that applies to more situations than for males, particularly 'spending a lot of time at work' and 'planning work schedules'. It is also interesting that 'it reduces contact with my family' and 'it limits my leisure and/or social life' are more closely correlated with 'it causes physical and/or mental symptoms' than for males (cf. 45.34° & 44.80° with 71.23° & 74.80°), implying that, for females, reduced personal time can lead to physical and mental problems.

Comparison of element means

'Spending a lot of time at work' has a higher mean and more variance for females than for males (cf. 2.97 & 2.03 with 2.66 & 1.62) showing that it is stressful for them for specific reasons, particularly the reasons already mentioned. The following illustrates the connection between 'long hours' and 'physical and mental symptoms':

> A caterer claimed that it was commonplace in her business for her to spend 20 continuous hours on the job (she changes her staff every eight hours to avoid 'overtime' rates). As well as being away from the family this is also physically demanding because the standing causes proneness to varicose

veins. Continuously chopping food has caused tendonitis. Having regular meals is difficult because eating on the job is not appropriate but by the time she gets home she no longer feels like eating.

Likewise the connection between 'long hours' and the personal life constructs:

1. Another caterer pointed out that most of her work is on Fridays and Saturdays which severely limits her own social life and often leaves her too tired and headachey on Sundays to enjoy having her husband and children at home.
2. One female respondent believes that the long hours spent building up the family wine business has caused bad relationships with the relatives, marital problems, personal problems and problems with the children in the families involved. Her husband's psychiatrist diagnosed the problem as caused by 'situation stress'.

Females have a higher mean and less variance than males for 'adapting to the changing business conditions' (cf. 3.03 & 1.18 with 2.83 and 1.65), indicating that it is more stressful for a greater number of reasons, particularly 'it affects my security'. For example:

1. To remain in business, a bookshop owner has adapted to the changing business conditions by diversifying into a greater proportion of cards and stationery as these are the lines that bring customers in and lead to the sale of books and toys.
2. The opposite experience, is true for a florist who claimed that "when times get tough, florists thrive" because people cannot afford expensive presents and buy flowers to cheer themselves up.
3. However, another florist finds that she has to adapt to changing times by learning different

ways of presenting and wrapping flowers. She claimed that older florists who are resisting the changes are losing business.

4. For a berryfarmer, adapting to the changing business conditions is both positive and negative. Because the market is getting tougher, cutting costs has involved attending courses at Lincoln College to learn how to manage without as much spraying. However, she is aware of the great health benefits arising from reduced spraying.

Although not highly stressful, females find 'dealing with the bank manager' more stressful than males. It has a higher mean and less variance for them (cf. 2.87 & 0.44 with 2.76 & 0.89), showing that it is more stressful for a greater number of reasons, particularly 'it requires skills that I do not have'.

Females have a higher mean and more variance than males for 'trying to obtain products/materials' (cf. 3.03 & 1.03 with 2.94 & 0.83), indicating that it is more stressful for specific reasons, particularly because 'it reduces business productivity' and 'it is unsatisfying'. For instance:

Obtaining fresh foods can be problematic. One coffee lounge owner said her suppliers often let her down, particularly the butcher, and changing her menu is difficult because of the fine time schedule to which she works.

Inter-element relations

For females the stressful situations 'doing paperwork' and 'spending a lot of time at work' are more closely related than for males (cf. 49.7°& 61.4°). The latter situation is also more closely correlated, for females, with 'planning work schedules' (cf. 44.2° & 52.4°) showing that they are stressful for similar reasons. For example:

1. A ladies fashions retailer finds paperwork

particularly stressful because of only one and a half years secondary education. Both GST and credit cards cause an increase in her bookwork which she has to do everynight while her husband is out because "he doesn't understand"

2. The majority of businesspeople reported that they had paperwork every night for between one and two hours but in many cases husbands did it for wives and wives did it for husbands.

3. Occasionally individuals find unique methods of dealing with paperwork. A florist said most of her mail went in the rubbish bin because she subscribes to the theory that "if it's important, it will come back".

Summary

The results for females show that the main concern is with work reducing personal time and contact with the family. Even though they work shorter hours than males, they see long hours as a frequ nt problem. They are less concerned with financial security than are males, and they tend to see work as providing satisfaction and giving them a good reputation. There are, however, certain aspects of the business, particularly financial ones, that tax their skills more than for males.

### 3.3.6 CONSENSUS GRID FOR 26-35 YEAR OLDS

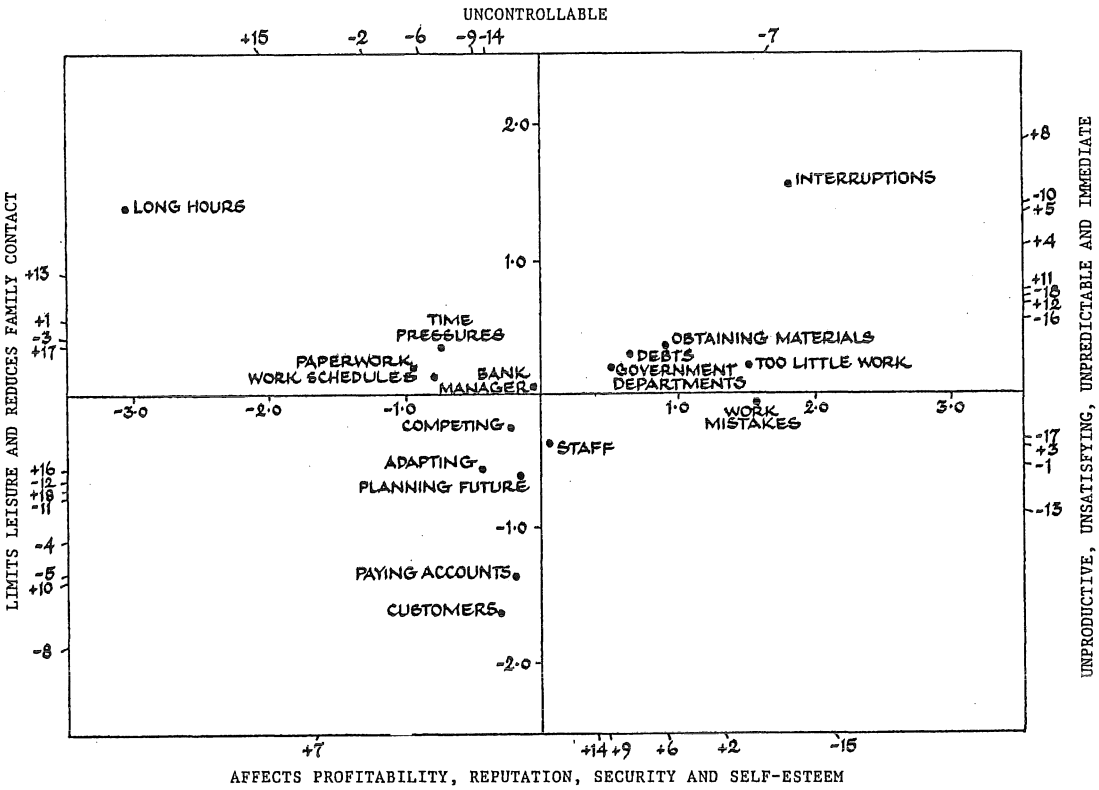
This section and the following three make comparisons between the grids for the different age groups.
This group will be referred to as AGE1.
The INGRID output shows three components are significant for AGE1 with the first two components accounting for 63 per cent of the variance.

The principal components (see Appendix D)

In the composite diagram the first component shows this group to differentiate their stressful work situations more strongly in terms of 'it limits my leisure and/or social

life' than by 'it reduces contact with my family' even though the two are closely correlated (40.74°).

FIG. 3.16 COMPOSITE DIAGRAM FOR 26-35 YEAR OLDS




Comparison of construct means

'It limits my leisure and/or social life' also has the highest mean and least variance for this group (cf. 2.57 & 1.24 with 2.35 & 1.36; 2.32 & 1.31; 2.36 & 1.50), showing this to be a reason that applies to many stressful situations. For example:

> A ladies fashions retailer finds that after Friday's late night and Saturday morning shopping, she is usually too tired to socialise with friends at the weekend. Occasionally she and her husband go to a restaurant with another couple on Saturday night.

This group are less concerned about security as 'it affects my security' has a lower mean and less variance than for the other groups (cf.2.80 & 1.25 with 3.03 & 1.48; 3.00 & 1.29; 3.11 & 1.70) indicating that is not a reason for many of

the stressful situations. However more situations 'cause problems at home' as there is a higher mean and little variance for this 'reason' than for the other age groups (cf. 2.58 & 1.20 with 2.34 & 1.34; 2.20 & 1.11; 2.16 & 1.51).

Comparison of element means

'Paying accounts' features strongly for this group. It has both a higher mean and less variance than for any other group (cf. 3.06 & 1.31 with 3.01 & 1.51; 2.95 & 1.52; 2.79 & 1.58) showing it to be more stressful for many reasons, particularly 'affecting profitability', 'affecting security' and 'affecting self-esteem'.It must be remembered that this is the group that are trying to build up a bank balance for establishing themselves in the world. For example:

> A ladies fashions retailer reported being on target for building a house and starting a family prior to the economic downturn. She is depressed as both projects have to be delayed and it is not possible to reschedule them because of the uncertainty of the future.

This group also has a high mean for 'dealing with government departments' but less variance than the other age groups (cf. 2.98 & 0.91 with 2.94 & 1.85; 2.83 & 1.22; 3.02 & 2.08), showing that it causes them stress for more reasons, particularly because 'it is unsatisfying' and 'it requires skills that I do not have'.

Angular distances between constructs

'It affects profitability' is more closely correlated with 'it affects my self-esteem' for this group (cf. 30.51° with 49.85° & 61.31° & 73.8°), but 'it affects my self-esteem' is less closely related to 'it affects my reputation' than for the other groups (cf. 60.51° with 39.51° & 37.92° & 49.83°). For this group, self-esteem appears to depend on financial success rather than other peoples' opinions.

Summary

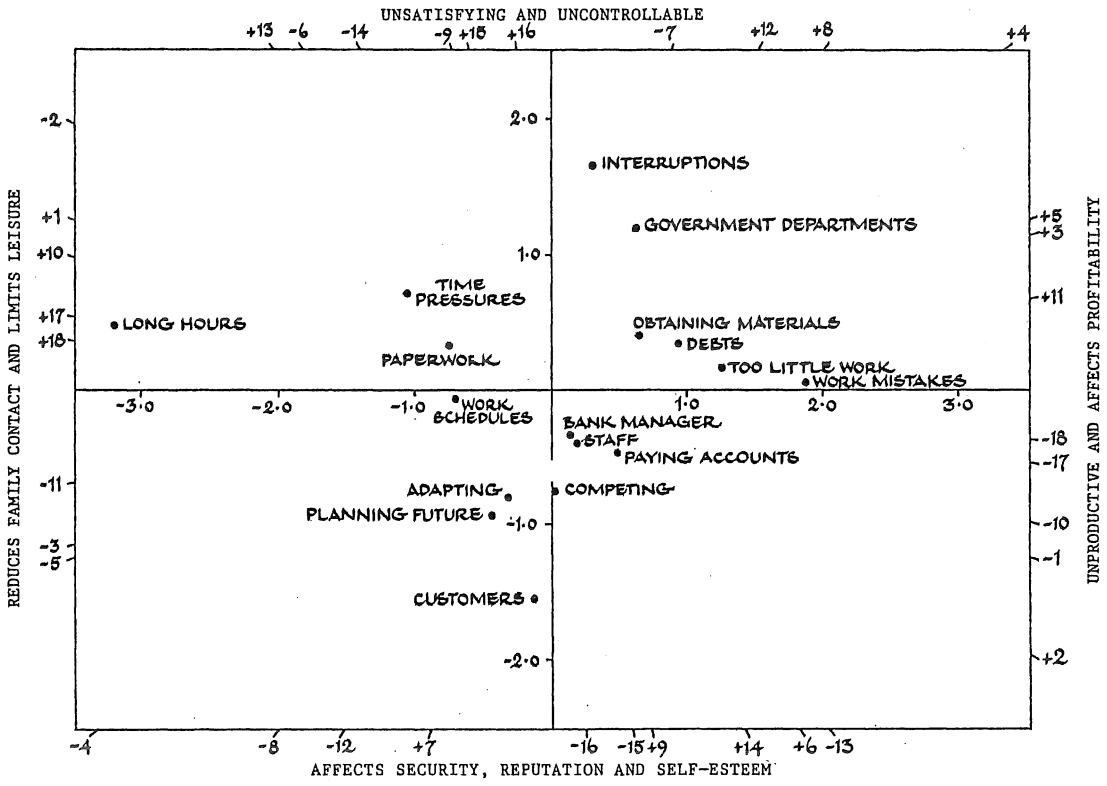
The trends for this age group suggest that there are two main sources of stress. The first is financial, not so much for security reasons, but rather because of the life style that financial success can provide. Secondly, they are concerned about restrictions to their leisure and social lives more than limitations to their family lives.

## 3.3.7 CONSENSUS GRID FOR 36-45 YEAR OLDS.

This group will be referred to as AGE2.

The INGRID output shows seven components are significant with the first two components accounting for nearly 64 per cent of the variance.

FIG. 3.17 COMPOSITE DIAGRAM FOR 36-45 YEAR OLDS




The principal components (see Appendix D)

The composite diagram shows 'it affects my security' to be a primary construct in differentiating between the stressful situations for this group, meaning that 'security' is an important consideration for them.

Comparison of element means

'Having too little work/business' is the situation with the highest mean for this group (3.16). It is very stressful for many reasons, particularly 'it reduces business productivity', 'it is unsatisfying' and 'it requires skills that I do not have'. For instance:

1. An electrician described his workload as "either feast or famine" but because of the constant worry of too little work, it is risky to turn work down when there is too much. Both working long hours and hanging around at home waiting for the telephone to ring are unsatisfying for him.
2. The problem of occupying staff when business is quiet, was mentioned by a motorbike retailer. During the present quiet period he is encouraging staff to use up all their annual leave.
3. A furniture retailer described staff as loosing their "selling edge and enthusiasm" when business is slack.

Angular distances between corstructs

For this group, 'it reduces contact with my family' and 'it limits my leisure and/or social life' are closely correlated with 'it is a frequent problem' (cf. 51.09° & 62.97°) meaning that these reasons apply to similar situations.

As with AGE1, 'it affects profitability' is closely correlated with 'it affects my self-esteem'. (cf. 49.85° & 30.51°).

Summary

The main trends for this age group suggest that they are very much concerned about security, and this manifests primarily through worry about having too little work. This is a group that are probably strongly committed to a mortgage and bringing up young children, and their domestic

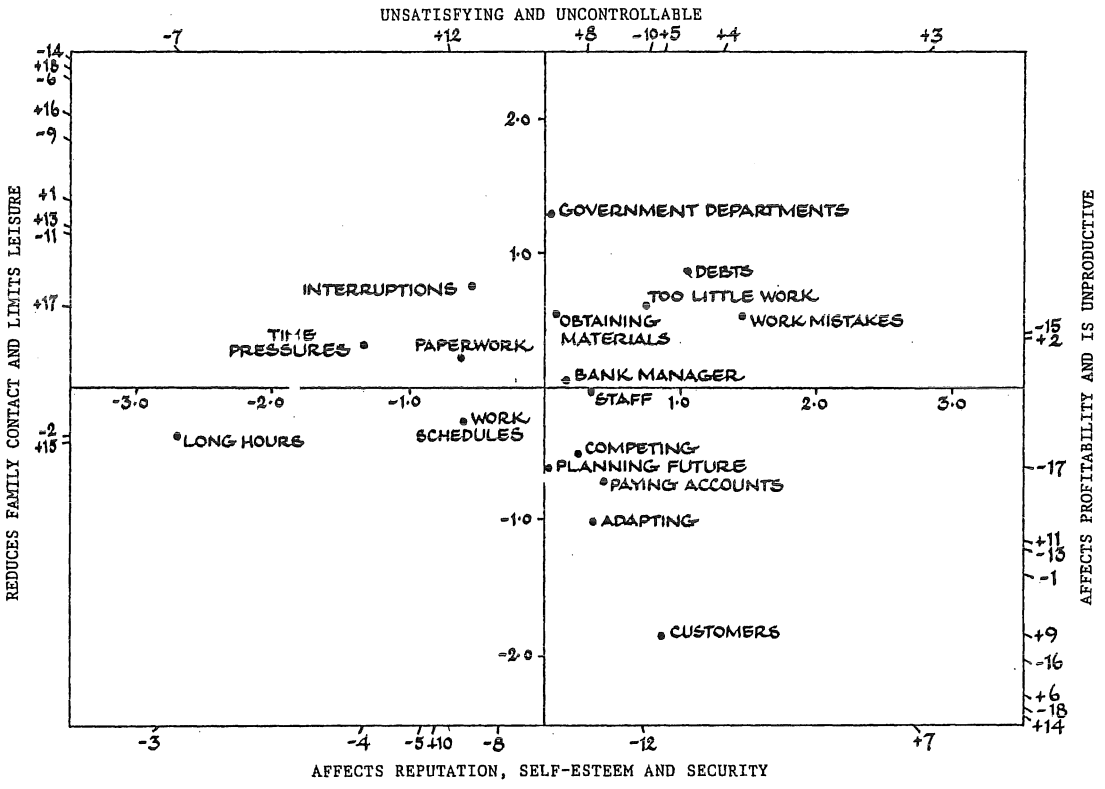
partners may not work. There is also the conflict of working long hours to meet their financial commitments, but consequently not spending as much time as they would like with their families.

### 3.3.8 THE CONSENSUS GRID FOR 46-55 YEAR OLDS

This group will be referred to as AGE3.

The INGRID output shows five components are significant with the first two components accounting for nearly 56 per cent of the variance.

FIG. 3.18 COMPOSITE DIAGRAM FOR 46-55 YEAR OLDS




Comparison of element means

The highest mean for this group is 'trying to collect debts' and this mean is higher than for any other group and has a higher variance (cf. 3.10 & 1.41 with 2.91 & 0.53; 3.01 & 1.19; 3.04 & 1.38). This shows that they find 'trying to collect debts' more stressful for specific reasons, such as 'it reduces business productivity' 'it affects profitability' and 'it is unsatisfying'. However, unlike AGE1 and AGE2 they do not feel that 'it requires

skills that I do not have'. The following examples illustrate the problems associated with debt collecting:

1. A busy contractor described a large part of his time spent on the telephone both trying to collect debts and explaining why he wasn't paying accounts. The local financial situation is so tight, according to him, that "each cheque received goes steaming to the bank immediately".
2. A hardware retailer prefers private individuals as customers, rather than trying to collect debts from tradesmen.
3. An electrician who judged 'debt collecting' as his main stress, estimated that about 30 per cent of his customers are slow payers, about 10 per cent are very slow, and about 5 per cent of the debts have to be written off.
4. The owner of a large joinery factory described his life as no longer stressful since hiring a new secretary who collected $90,000 in debts in her first week of employment. He considers her well worth her salary of $50,000 per annum.

This group are less concerned about 'having too little work/business' as they have both a lower mean and little variance for this situation compared with the other groups (cf. 2.93 & 1.23 with 3.11 & 1.16; 3.16 & 1.26; 3.12 & 1.58). This shows that although stressful, 'having too little work/business' is less stressful for most reasons than for the other groups.

Summary

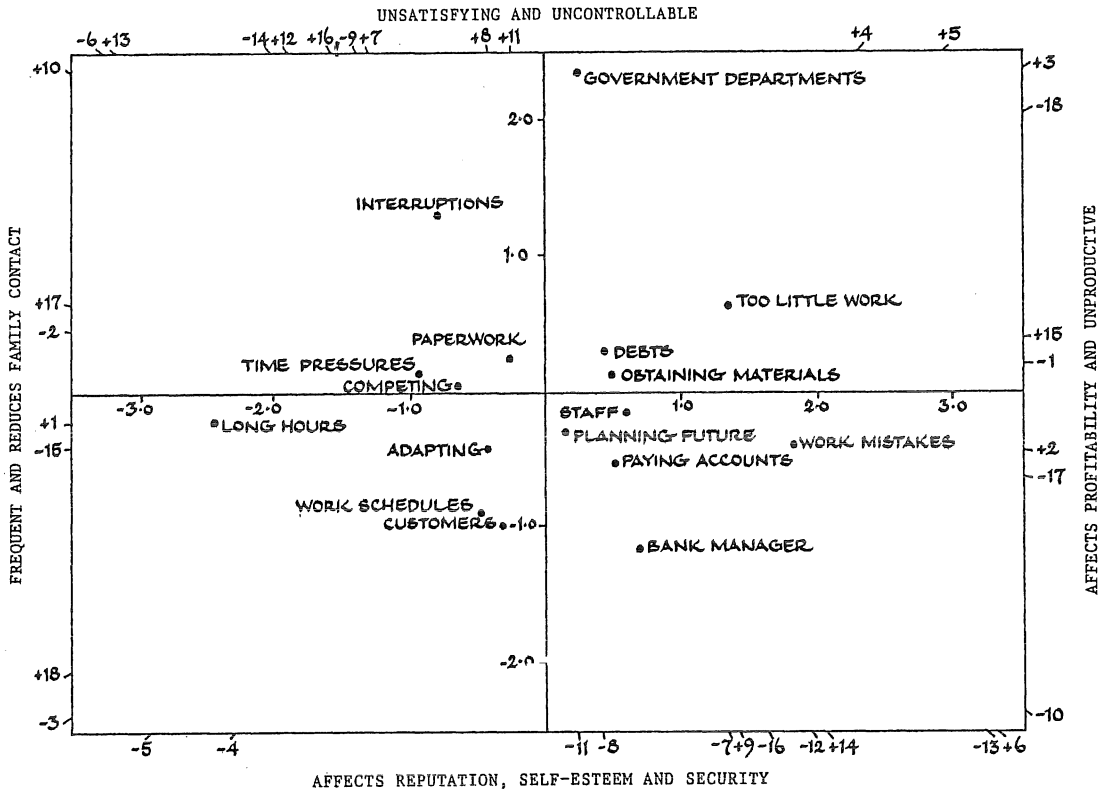
This age group seems to be less concerned than the younger groups about security and more concerned with reputation. However, they are very much stressed by present difficulties connected with debt collecting. They may be of an age when it is difficult to learn new habits.

### 3.3.9 CONSENSUS GRID FOR 56-65 YEAR OLDS

This group will be referred to as AGE4.

The INGRID output shows seven components are significant for this group, and the first two components account for over 49 per cent of the variance, showing that they are more cognitively complex than the other groups, in terms of work stress; the usual groups of elements are not as closely correlated as for the other groups.

FIG. 3.19 COMPOSITE DIAGRAM FOR 55-65 YEAR OLDS




The principal components (see Appendix D)

From the composite diagram, it can be seen that although 'spending a lot of time at work' and 'working under time pressures' do 'reduce contact with my family' etc, this group differentiates these situations more effectively in terms of their 'frequency' compared with the other groups. This means that the frequency of long hours and time pressures is the aspect that concerns them most.

Comparison of element means

This group has a higher mean and more variance for 'dealing with government departments' than the other groups (cf. 3.02 & 2.08 with 2.98 & 0.91; 2.94 & 1.85; 2.83 & 1.22)

indicating that they find it more stressful for specific reasons, particularly in terms of 'they are unsatisfying' and 'I have no control'.

They have a lower mean but more variance for 'dealing with the bank manager' than the other groups (cf. 2.66 & 1.05 with 2.78 & 0.56; 2.80 & 0.75; 2.87 & 0.70), showing that they find it less stressful for most reasons and they relate it less closely to 'it affects my security' than the other groups (cf. 94.7°with 73.2°; 72.7°; 57.9°).

They find 'doing paperwork' more stressful than the other groups for specific reasons (cf. 2.99 & 1.98 with 2.78 1.19; 2.91 & 1.47; 2.84 & 1.62). They regard it as 'always present' and, unlike the other groups, as 'affecting my security'. One area in which it relates closely to 'security' is when trying to obtain work by tendering. For example:

> A builder in this group estimated that 80 per cent of his evening work is preparing tenders, of which he might win 70 per cent.

This group are also more stressed than the other groups by 'dealing with interruptions' (cf.3.05 & 1.66 with 2.86 & 1.82; 2.98 & 1.69; 2.83 & 1.41). They see them as stressful in many ways, particularly as 'unpredictable' and 'an immediate problem'.

For 'dealing with work mistakes' they have a lower mean than the other groups and more variance (cf. 2.83 & 1.68 with 2.97 & 1.33; 3.03 & 1.67; 3.01 & 1.18) showing that mistakes are stressful for fewer reasons for them as they see them primarily as 'affecting my reputation' and not so much 'reducing productivity' and 'affecting profitability'.

Summary

The trends for this age group show them to be generally less stressed by long working hours, presumably because they are

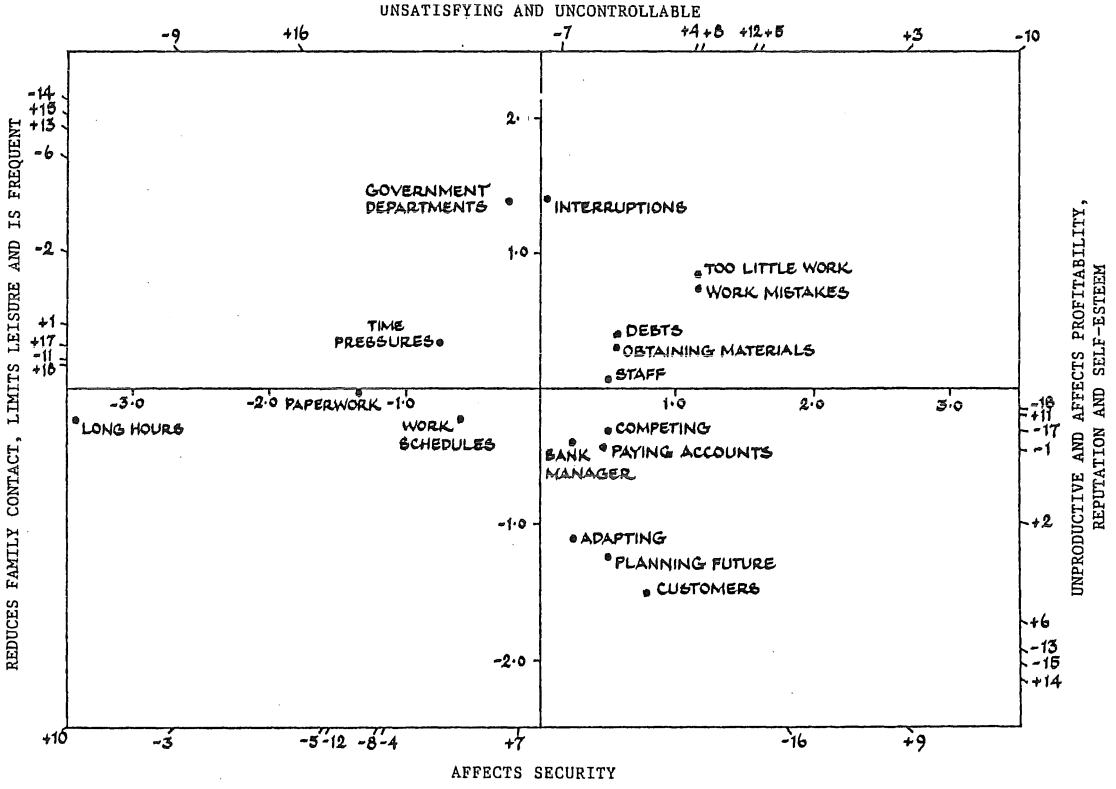
not as involved socially and familywise as the other groups. However they do find the frequency of 'long hours' stressful. Financially they appear to be more secure than the other groups, and their concern is more with their reputation. They seem to have little patience with paperwork, bureaucratic demands, and interruptions. Their greater cognitive complex shows that there are more dimensions along which they differentiate the stressful situations than for the other groups.

### 3.3.10 CONSENSUS GRID FOR RETAIL GROUP

This section and the next section make comparisons between the retail group and the trade group. The retail group also includes wholesalers, and the trade group also includes those who are both trade and retail.

The INGRID output for this group shows five components are significant, and the first two components account for nearly 58 per cent of the variance.

FIG. 3.20 COMPOSITE DIAGRAM FOR RETAILERS



The principal components (see Appendix D)

From the composite diagram, the second component shows 'security' to be a major reason that effectively differentiates between the stressful situations, meaning that the retailers assess stressful situations very much according to whether they affect their security.

Comparison of construct means

In actual fact, 'it affects my security' has a higher mean but less variance for the retailers than for the tradespeople (cf. 3.05 & 1.38 with 2.83 & 1.52), showing that it is a 'reason' that is important in many of the stressful situations, particularly 'trying to plan my future' and 'adapting to the changing business conditions'.

Comparison of element means

However, 'trying to plan my future' has a lower mean and more variance for the retailers (cf. 2.70 & 1.76 with 2.84 & 1.29), indicating that it is generally less stressful for them than for tradespeople except for some specific reasons, as instanced in the previous paragraph. However one group of people badly affected by changing conditions are car retailers. For example:

> One car sales owner has adapted to the changing market by reducing staff, reducing stock levels and leasing off part of his yard. However he still claimed that he hadn't made a profit in two years, and his security depended on his wife's job. For the future, he wants to carry on in his own business, because he enjoys the independence, but he realises that he may have to look for other work.

On the other hand:

> One service station owner acknowledged that belonging to a trade organisation is responsible for helping him to keep in touch with the current changes and make plans for the future.

'Having too little work' is the 'situation' with the highest mean for both retailers (3.12) and tradespeople (3.08), revealing that it is stressful for many reasons.

Inter-element relations

For retailers, there is a smaller angular distance between 'doing paperwork' and 'spending a lot of hours at work' than for tradespeople (cf. 44° & 67.5°), meaning that these are situations that are stressful for similar reasons, particularly 'it reduces contact with my family', 'it limits my leisure and/or social life, and 'it is a frequent problem':

> Even a small greengrocer estimated that she had about one hour of paperwork each night, mostly concerned with government departments' requirements.

Summary

Retailers appear to have specific problems that are different from those of tradespeople. They feel that their security is threatened in the present economic environment, and this may be a problem that largely relates to rental premises. They appear to find their hours of business more demanding than tradespeople.

3.3.11 CONSENSUS GRID FOR TRADESPEOPLE

The INGRID output for the TRADE consensus grid shows six components to be significant with the first two components accounting for over 64 per cent of the variance.

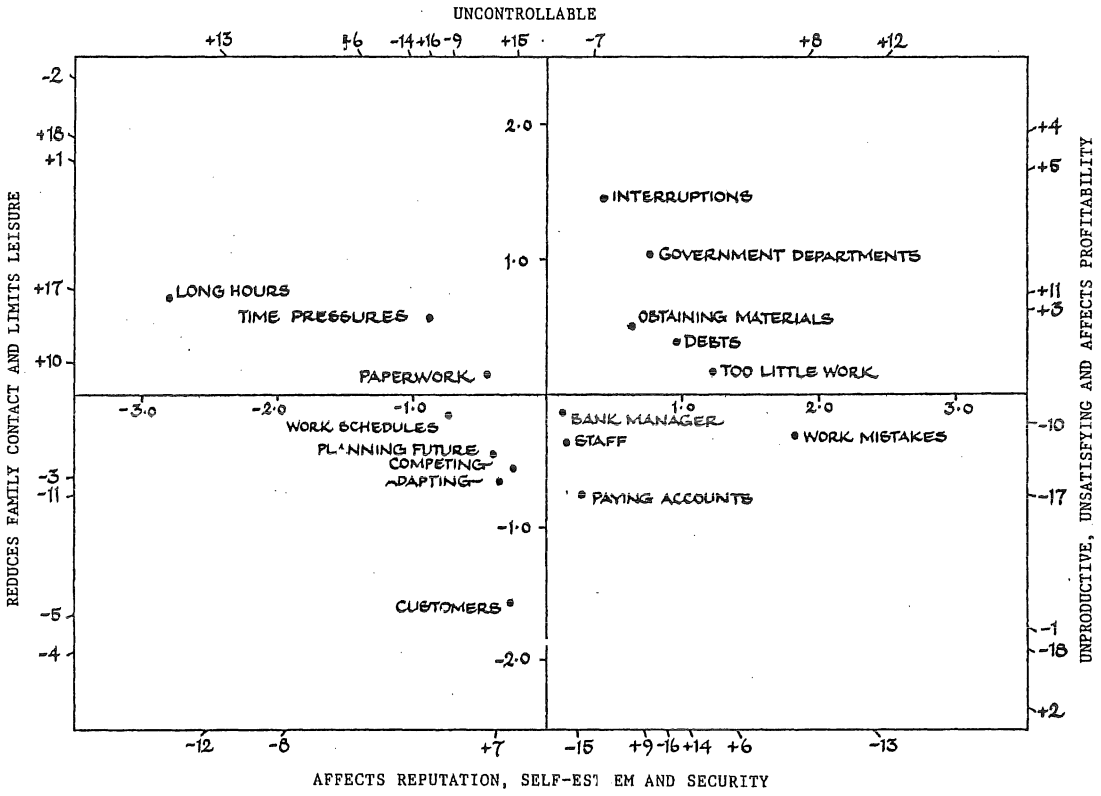
Comparison of element means

For tradespeople 'trying to collect debts' has a very high mean, with a higher mean and more variance than for retailers (cf. 3.05 & 1.18 with 2.92 & 1.06), showing that it is more stressful for specific reasons, particularly 'it reduces business productivity', 'it is unsatisfying', 'it requires skills that I do not have' and 'it is uncontrollable'. For example,

> Many tradespeople believe that they are spending

unnecessary hours on debt-collecting. A wrought iron worker claimed that people who ordered work from him and who didn't pay were not people who were actually short of money, but people who were taking advantage of the fact that tradespeople can't afford to turn down any work when times are hard.

FIG. 3.21 COMPOSITE DIAGRAM FOR TRADESPEOPLE




'Dealing with work mistakes' has a higher mean and more variance for tradespeople (cf. 3.02 & 1.54 with 2.92 & 1.39), indicating that it is more stressful for specific reasons, particularly 'it affects profitability' and 'it affects my reputation'. For example:

1. A die manufacturer stressed how important good workers are to him, as a worker who goes to sleep on the job can cost him time and money to put the mistake right, and, if the mistake is not picked up before it leaves the factory, the firm's reputation is 'on the line'.
2. A photographer related how acutely aware he

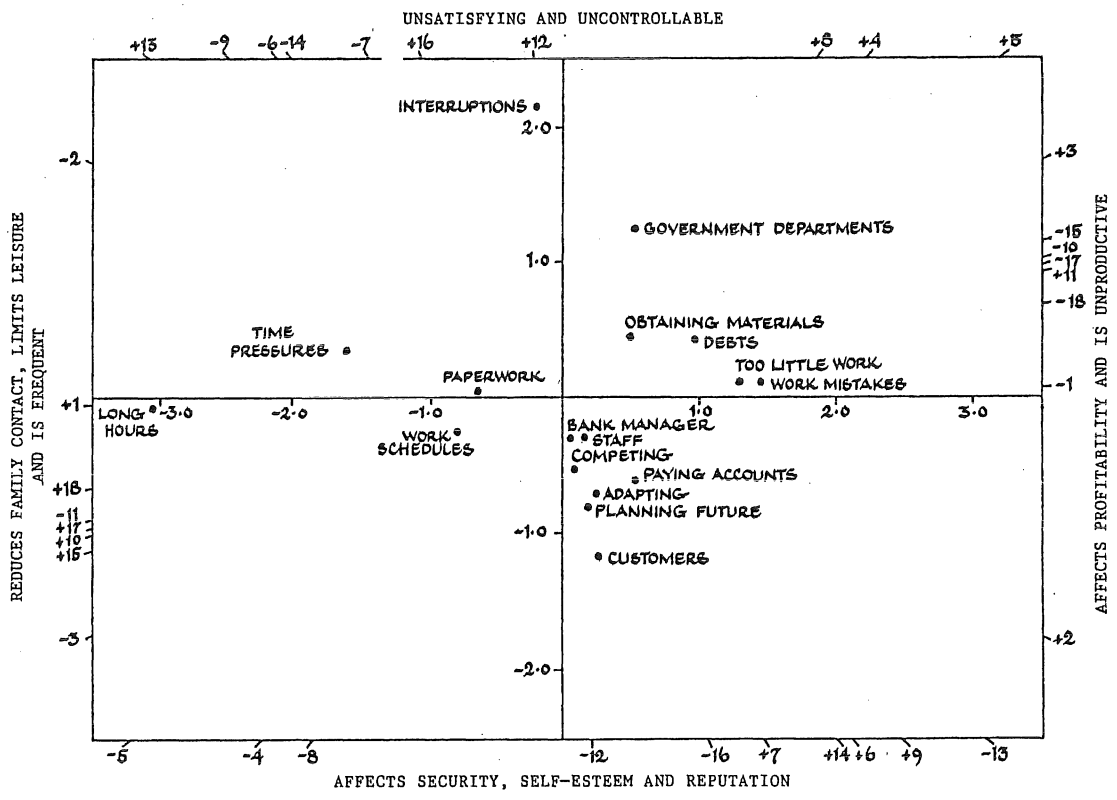
is that mistakes that result in poor wedding photographs could actually put him out of business, as there have been cases of people sueing photographers 'for emotional distress' in such circumstances.

Summary

Whilst retailers are more keenly aware of security, and competition from other businesses, tradespeople appear to have problems with debt-collecting and dealing with work mistakes that are less applicable to retailers. The composite diagram shows that 'long hours', 'government departments', etc. are causes of stress in the same ways as for all of the subgroups.

## 3.3.12 CONSENSUS GRID FOR THOSE WITH NO EXTRA FAMILY INCOME

FIG. 3.22 COMPOSITE DIAGRAM FOR THOSE WITH NO EXTRA FAMILY INCOME




This section and the next section compare those whose domestic partners work outside the business with those whose domestic partners do not work outside the business.

This group will be referred to as NOEXTRAINCOME.
The INGRID output of the consensus grid for this group shows that five components are significant, and the first two components account for over 60 per cent of the variance.

The principal components (see Appendix D)
The second component shows that this group uses 'it affects my security' as a reason that more effectively differentiates between the stressful situations than 'it affects my self-esteem' and 'it affects my reputation', meaning that 'affecting security' is a more important criterion for evaluating situations.

Comparison of construct means
'It affects my security' has a higher mean and less variance for this group than for the EXTRAINCOME group (cf. 3.12 & 1.40 with 2.84 & 1.47), indicating that it is a greater reason for stress in more situations, particularly 'adapting to the changing business conditions' and 'paying accounts'.

'It causes physical and/or mental symptoms' also has a higher mean but less variance for this group than for the EXTRAINCOME group (cf. 2.96 & 1.26 with 2.79 & 1.33). This shows that this reason is more strongly applicable to many stressful situations, specifically 'spending a lot of time at work'.

'It affects profitability' has a higher mean and less variance for this group (cf. 3.39 & 1.35 with 3.19 & 1.37), showing that financial considerations are important in many stressful situations, particularly 'paying accounts'.

Angular distances between constructs
For this group 'it causes physical and/or mental symptoms' is more closely correlated with 'it limits my leisure and/or social life' and 'it causes problems at home' than for EXTRAINCOME (cf. 48.64° & 42.22° with 76.36° & 83.26°),

meaning that these reasons are applicable to similar stressful situations.

Comparison of element means

'Paying accounts' has a higher mean and less variance for this group (cf. 3.01 & 1.31 with 2.98 & 1.58), demonstrating that it is more stressful for the reasons given in the last paragraph.

For this group the stressful situation with the highest mean is 'dealing with work mistakes'. This situation has a higher mean and less variance for this group than for the EXTRAINCOME group (cf. 3.07 & 1.37 with 2.97 & 1.59) indicating that it is more stressfulfor a greater number of reasons, particularly because 'it affects my reputation'.

They also have a higher mean and less variance than the EXTRAINCOME group for 'dealing with the bank manager' (cf.2.88 & 0.50 with 2.73 & 0.91), even though neither group finds 'dealing with the bank manager' highly stressful. The NOEXTRAINCOME group find this situation more stressful because 'it affects my self-esteem' and 'it causes problems at home'. For example:

> Because of the importance of obtaining finance for his seasonal purchases four times a year, a menswear retailer always takes his accountant when seeing the bank manager and makes sure he is "armed with plenty of computer printouts".

Summary

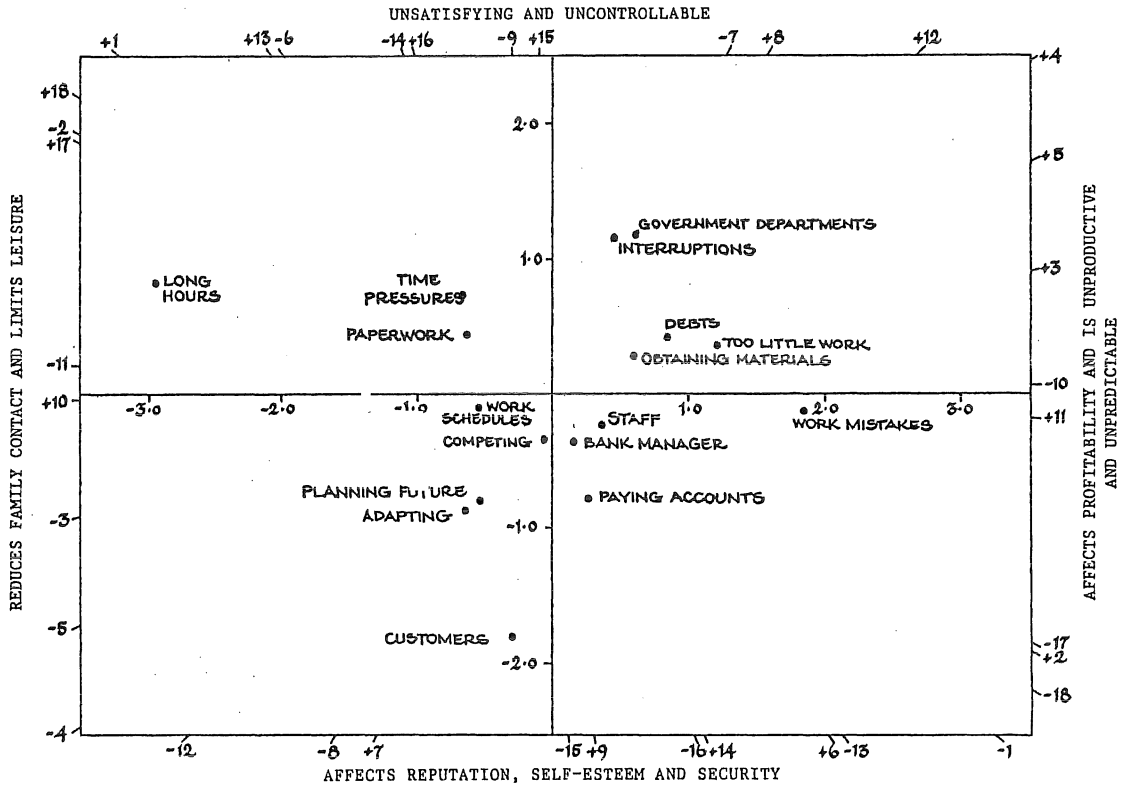
Compared with the group whose domestic partners do work outside the business, the most important feature for this group is that they appear to be under greater financial stress, and they also appear to be more concerned about their fincancial security. This is consistent with not having a second family income to 'fall back on' in times of economic depression.

## 3.3.13 CONSENSUS GRID FOR THOSE WITH AN EXTRA FAMILY INCOME

This group will be referred to as EXTRAINCOME group.

The INGRID output for the consensus grid for this group shows seven components are significant and the first two components account for nearly 63 per cent of the variance.

FIG. 3.23 COMPOSITE DIAGRAM FOR THOSE WITH AN EXTRA FAMILY INCOME




Comparison of element means

As with many of the groups, the stressful situation with the highest mean for this group is 'having too little work/business' (3.13), indicating that it is stressful for many reasons.

This group has a higher mean and more variance than the NOEXTRAINCOME group for the stressful situation 'competing with other businesses' (cf. 3.03 & 1.38 with 2.76 & 1.24), showing that it is more stressful for specific reasons, but particularly 'it is always present' and 'it affects my self-esteem'.

They also have a higher mean and less variance for 'dealing with government departments' (cf. 3.01 & 1.48 with 2.86 & 1.68), showing that it is more stressful for many reasons, but particularly 'it is unsatisfying', 'it reduces business productivity', 'it requires skills that I do not have' and 'it is uncontrollable'.

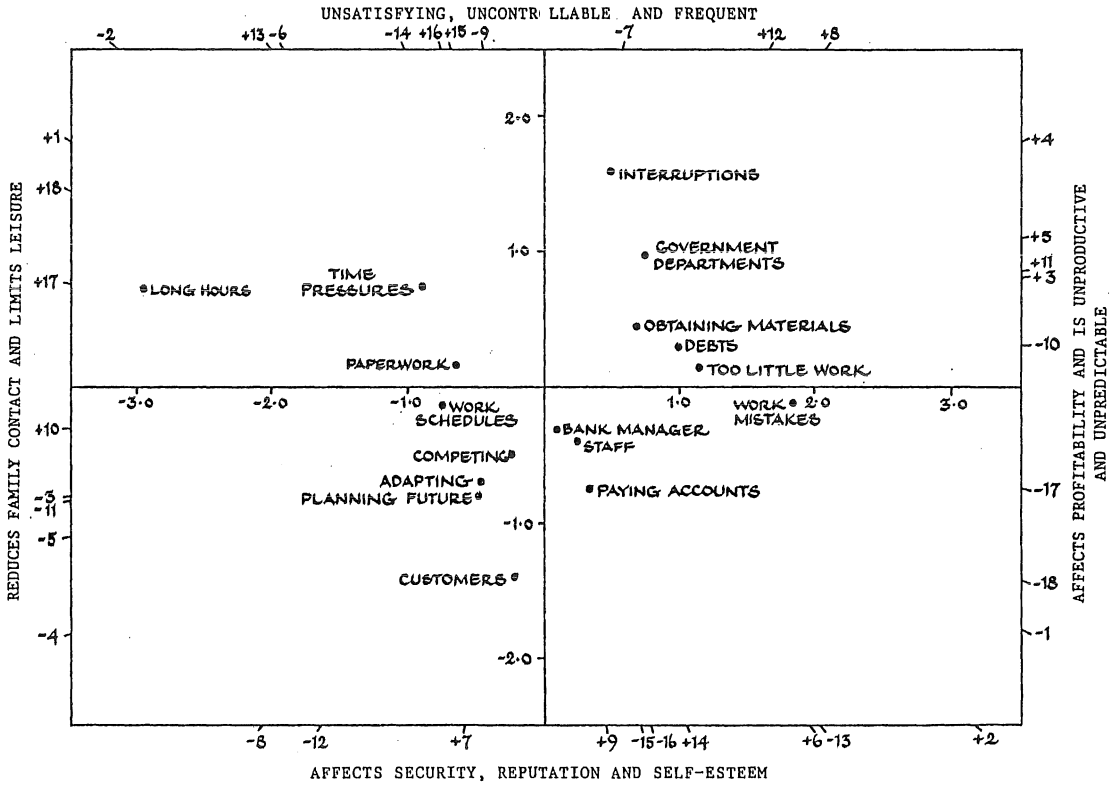
Summary

This group appears to feel less financial pressure than the group whose domestic partners do not work outside the business. Surprisingly, they do appear to be more keenly aware of competition from other businesses and more impatient of bureaucratic demands.

### 3.3.14 CONSENSUS GRID FOR GROUP WITHOUT STAFF

This section and the next section compare respondents with staff and respondents without staff.
This group will be referred to as NOSTAFF.

FIG. 3.24 COMPOSITE DIAGRAM FOR THOSE WITHOUT STAFF



The INGRID output of the consensus grid for the group without staff shows eight components are significant and the first two components account for over 64 per cent of the variance.

Comparison of construct means

This group has a higher mean and less variance than HASSTAFF for 'it requires skills that I do not have' (cf. 2.65 & 0.62 with 2.48 & 0.94), indicating that it is a reason that applies to many stressful situations, specifically 'trying to collect debts', 'having too little work/business' and 'dealing with government departments'.

Comparison of element means

The situation 'trying to collect debts' has a higher mean and more variance for this group than for HASSTAFF (cf. 3.06 & 1.22 with 2.82 & 0.80), showing that it is more stressful for specific reasons, particularly 'it reduces business productivity', 'it is unsatisfying', 'it requires skills that I do not have' and 'it is uncontrollable'.

The situation 'having too little work/business' has the highest mean of all situations for this group, and it also has a higher mean and less variance for this group than for HASSTAFF (cf.3.14 & 1.26 with 2.90 & 1.31). This indicates that it is more stressful for many reasons and, as it is closely correlated with 'trying to collect debts', the same reasons apply as in the previous paragraph.

They also have a higher mean and more variance for 'dealing with interruptions' (cf. 2.99 & 1.69 with 2.71 & 1.40), indicating that it is more stressful for specific reasons, namely 'it is uncontrollable', 'it is unpredictable' and 'it is an immediate problem'. For example:

> A menswear retailer complained of the increasing number of salespeople selling advertising, insurance etc. who tend to call without

> appointments or, if they are expected, are either very early or very late.

'Dealing with clients/customers' has a higher mean and more variance for this group (cf. 2.87 & 1.80 with 2.59 & 1.68), showing that it is more stressful for specific reasons, particularly 'it affects my reputation' and 'it affects my self-esteem'. For example:

> One ladies fashions retailer spoke about not wanting to affect her reputation by reprimanding customers, but, at the same time, feeling annoyed "when they behave like children, all wanting my attention at the same time".

Summary

Businesspeople that do not employ staff appear to be under pressure because of the problem of doing everything oneself, as compared with those who have staff and can, therefore, call on different expertise for specific tasks. This group also find interruptions a problem, for similar reasons, because they have to attempt to do everything themselves.

### 3.3.15 CONSENSUS GRID FOR GROUP WITH STAFF

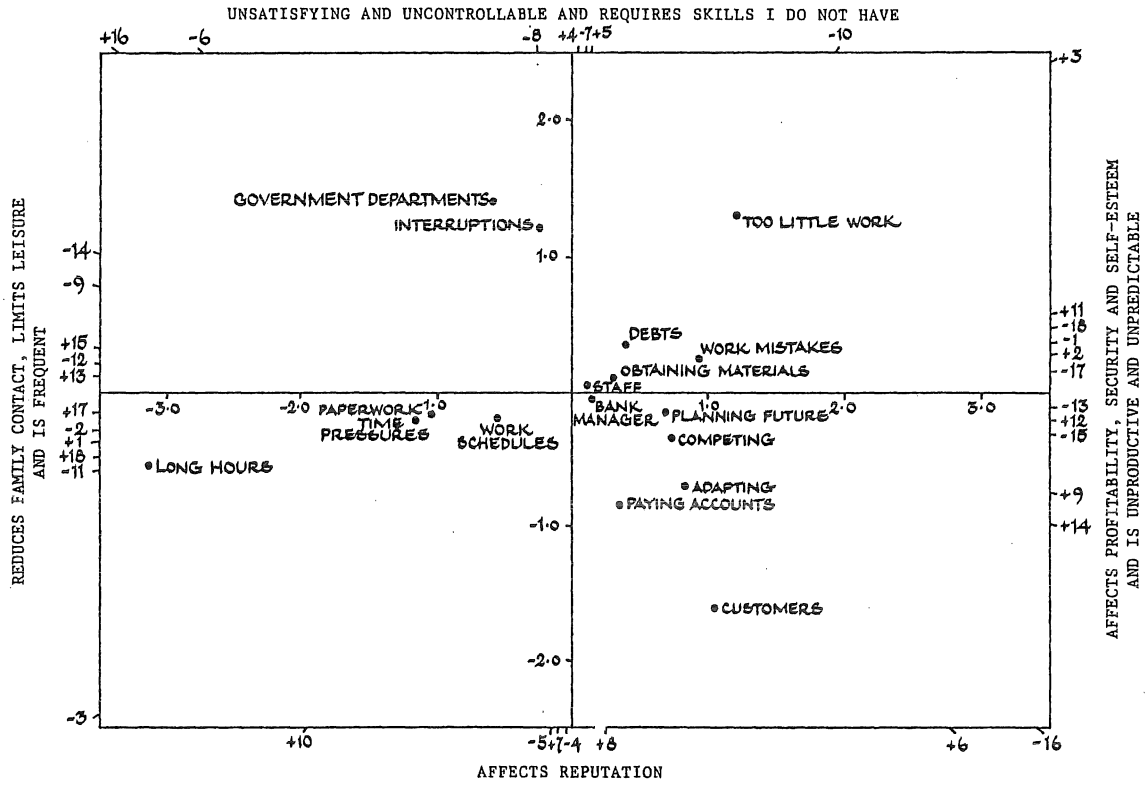
This group will be referred to as HASSTAFF.

The INGRID output of the consensus grid for this group shows that six components are significant and the first two components account for nearly 52 per cent of the variance, showing them to be more cognitively complex than NOSTAFF.

Comparison of construct means

This group has a higher mean and more variance than NOSTAFF for 'it affects profitability', (cf. 3.35 & 1.37 with 3.07 & 1.26), showing that it is a reason that is more applicable to specific situations, namely 'adapting to changing business conditions', 'too little work/business' and 'competing with other businesses'.

FIG. 3.25 COMPOSITE DIAGRAM FOR THOSE WITH STAFF




This group also has a higher mean and more variance for the reason 'it affects my self-esteem', (cf. 2.62 & 1.34 with 2.34 & 1.17), indicating that it is more applicable to specific stressful situations, particularly 'supervising staff and dealing with staff problems'. The reasons 'it affects my reputation' and 'it affects my security' are more closely related for this group than for NOSTAFF (cf. 44.43° with 55.62°), showing that they apply to similar stressful situations. They also have higher means and more variance for this group than for NOSTAFF (cf. 2.62 & 3.05 with 2.34 & 2.71). This shows that they are applicable to a greater number of stressful situations, particularly 'adapting to changing business conditions' and 'competing with other businesses'.

The reasons 'it is a responsibility' and 'it is always present' are also more closely related for this group (cf. 44.78° with 70.07° ),indicating that they apply to similar stressful situations. They also have higher means for this group than for NOSTAFF (cf. 3.81 & 3.39 with 3.53 & 3.12), showing that they are applicable to a greater number of stressful situations, particularly 'doing paperwork' and 'paying accounts'.

Comparison of element means

Supervising staff and dealing with staff problems' has a higher mean for this group (cf. 2.95 with 2.85), as this situation is, of course, not applicable to NOSTAFF.

Staff problems typically involve dealing with staff members' moods. For example:

1) One ladies fashions retailer rated dealing with the moods and problems of middle-aged female staff as a major problem. She finds that staff moods vary with their personal problems, and, "when they don't feel happy, they won't do a fair day's work".

2) To avoid this problem, a sports clothes manufacturer contracts out a'l her sewing to women at home because she doesn't want "a factory full of women who will bring their problems and moods to work".

There are other problems that are just as difficult to deal with. For example:

1) A hardware retailer finds supervising staff difficult when he has a heavy office workload. He claimed that statistically a store the size of his would loose goods totalling between $10,000 and $20,000 per annum to shoplifters, and that 60 per cent of that could be expected to be by staff.

2) A cosmetician reported the problem of keeping good staff. She trains her staff, only to have

many leave and start their own businesses.

3) A widowed photographic studio owner found herself in the difficult position of chauffeuring her photographer to appointments at all hours, because he had lost his driving license.

'Trying to plan my future' has a higher mean and less variance for this group (cf. 2.85 & 1.32 with 2.79 & 1.44), indicating that it is more stressful for many reasons, particularly 'it affects my security' and 'it is unpredictable'. For example:

A contractor may typify the thinking of many people in business; the stress involved in running the business makes closure a serious possibility, except for the necessity of paying staff redundancy money.

Summary

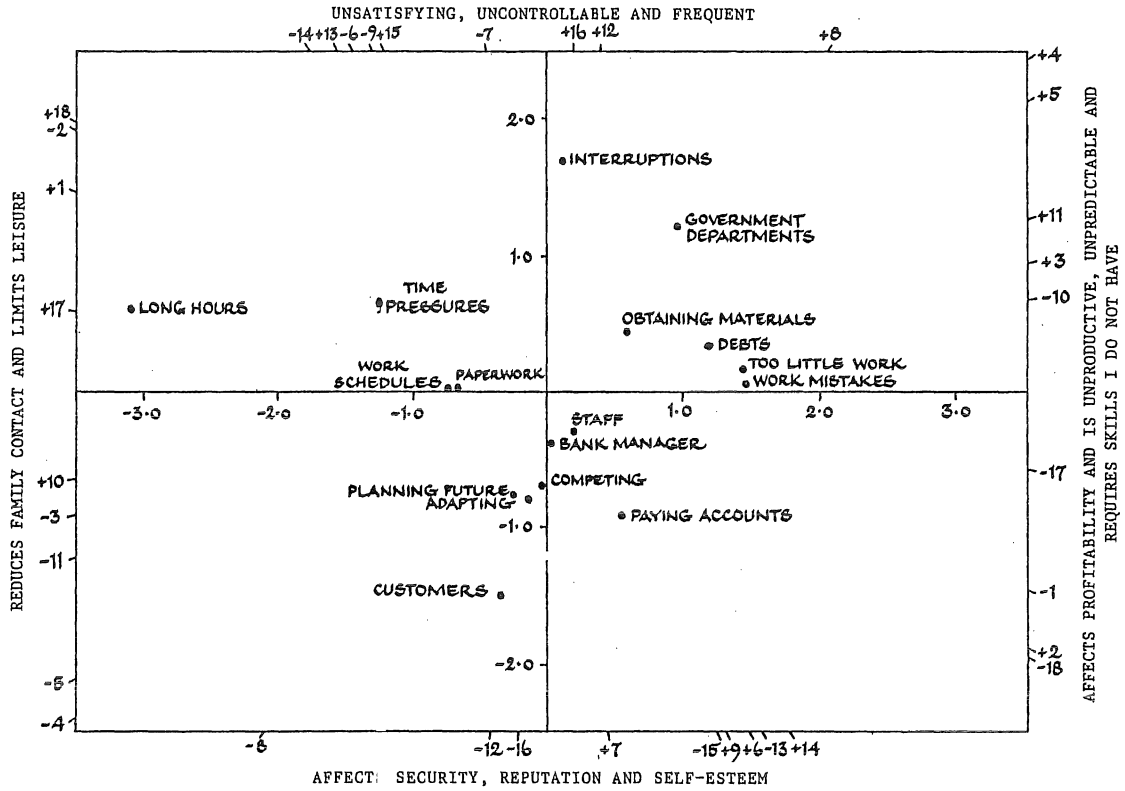
As well as advantages associated with having staff, there appear to be many problems. Financially there is a commitment to paying weekly wages, and there is also a financial commitment to staff should the business not remain viable. This makes 'planning the future' more difficult. There is also concern regarding the standard of work attained by staff, which the owner cannot always supervise. In addition to these strains, this group have more people with whom they interact and maintain a relationship.

### 3.3.16 CONSENSUS GRID FOR THOSE WITHOUT A WORKING BUSINESS PARTNER

This section and the next section compare those who have a working business partner with those who do not have one. This group will be referred to as NOPARTNER

The INGRID output of the consensus grid for this group shows five components are significant and the first two components account for over 64 per cent of the variance.

FIG. 3.26 COMPOSITE DIAGRAM FOR THOSE WITHOUT A WORKING BUSINESS PARTNER




Comparison of construct means

This group has a higher mean and more variance than HASPARTNER for 'it affects my reputation' (cf. 3.01 & 1.52 with 2.72 & 1.41), showing that it is a reason that is more applicable to specific stressful situations, particularly 'supervising staff and dealing with staff problems' and 'paying accounts'.

Comparison of element means

For both NOPARTNER and HASPARTNER, 'having too little work or business' is the stressful situation with the highest mean, and little variance, indicating that it is more stressful for many reasons. This situation has a higher mean

and more variance for NOPARTNER (cf. 3.15 & 1.37 with 3.01 & 1.14), showing that it is more stressful for specific reasons, particularly 'it reduces business productivity' and 'it is uncontrollable'.

This group also has a higher mean and less variance for the situation 'dealing with work mistakes' (cf. 3.06 & 1.39 with 2.88 & 1.65), showing that it is more stressful for a greater number of reasons than for HAVEPARTNER, particularly 'it affects profitability' and 'it reduces business productivity'.

NOPARTNER has a higher mean and more variance than HAVEPARTNER for the situation 'dealing with government departments' (cf. 2.99 & 1.77 with 2.84 & 1.26), indicating that it is more stressful for specific reasons, particularly 'it reduces business productivity', 'it is unsatisfying' and 'it requires skills that I do not have'.

Summary

The trends indicate tnat work is generally more stressful for those who do not have a working partner. A partner seems to provide support across most situations involved in running a small business.

### 3.3.17 CONSENSUS GRID FOR THOSE WITH A WORKING BUSINESS PARTNER

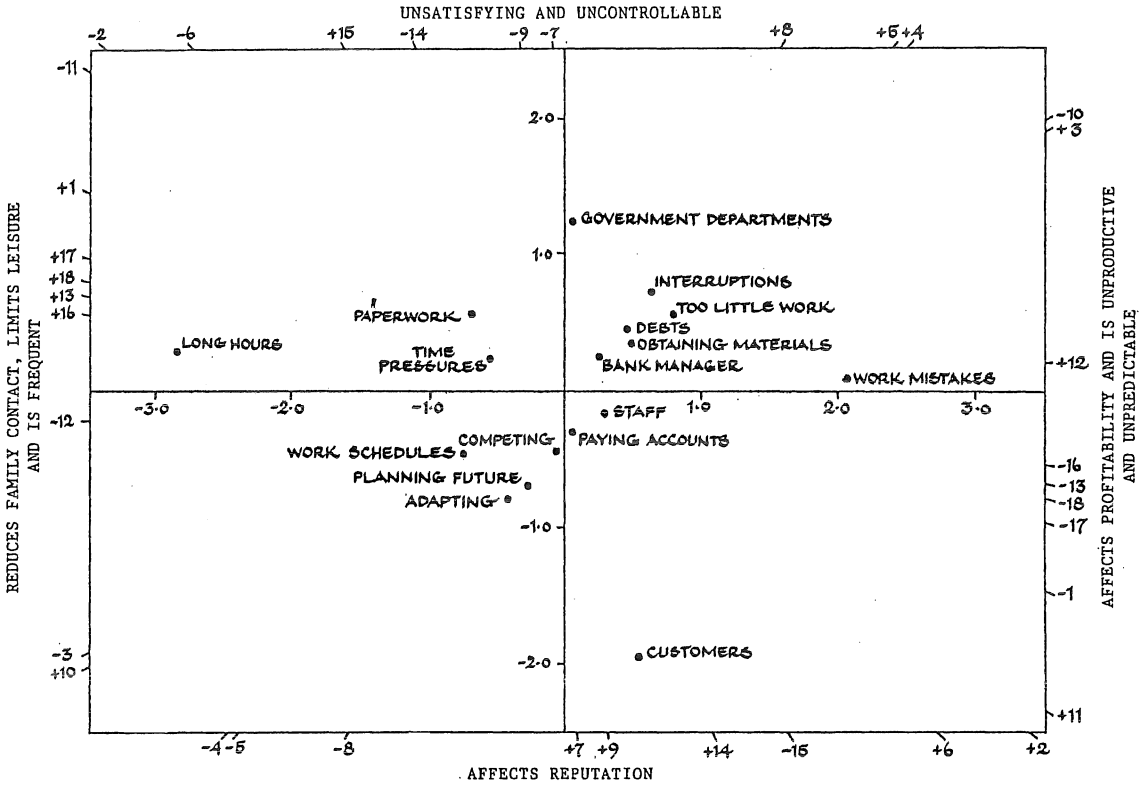
This group will be referred to as HASPARTNER.
The INGRID output for the consensus grid for this group shows that nine components are significant and the first two components account for nearly 60 per cent of the variance.

The principal components (see Appendix D)

From the composite diagram it can be seen that 'it affects my security' is a reason that does not differentiate between the stressful situations as effectively as for NOPARTNER, meaning that this reason is not as applicable to the

stressful situations as it is for NOPARTNER.

FIG. 3.27 COMPOSITE DIAGRAM FOR THOSE WITH A WORKING BUSINESS PARTNER




## Comparison of element means

For this group 'adapting to changing business conditions' has a higher mean and less variance than for NOPARTNER, (cf. 2.94 & 1.29 with 2.87 & 1.66), showing that it is more stressful for a greater number of reasons, particularly 'it affects my security'. However the difference is small.

# CHAPTER FOUR

# DISCUSSION

The discussion of this research project begins with an overview of the results, and this is followed by a discussion of each of the main areas of stress. Where applicable, the problem of stress in small businesses is placed in the wider New Zealand socio-economic environment, and business trends for the future are discussed. This chapter closes with an examination of the limitations of the research project and suggestions for future research.

## 4.1 OVERVIEW OF RESULTS

Stress is known to have potentially deleterious effects on performance as well as on physical and psychological well-being. Because of their important niche in New Zealand's community and economic life, businesspeoples' problems must also have repercussions for society as a whole. This research does not attempt to rank the main stressors. It is an exploratory study that seeks to identify the significant components of stress for the small business owner. However some speculations about the magnitudes of the stressors are possible because of the numbers of contributing reasons given and the supporting evidence of the qualitative data.

Although the results describe trends indicating differences between the subgroups of respondents, the most striking observation is the degree of similarity between groups with regard to the main stressors and the reasons for these. This emphasises the importance of these stressors if they are ubiquitous for all groups.

## 4.2 EMPLOYMENT HISTORY

The majority of the respondents are in the middle-age category, suggesting that it is unusual to become self-employed before the age of 30, probably because of

lack of both motive and finance. Nearly 70 per cent previously worked for an employer, but more than half of these had not changed their type of work. Over 30 percent of the sample had previously been self-employed and this group is divided equally into those previously in the same type of work and those previously in a different type of work. The most common reason for becoming self-employed was to become 'independent', which was also reported by Porter (1988), and this clearly continues to provide a motive even when the hours are long and the financial rewards are low.

This provides a fairly clear picture of the businessperson's background, but as there are few people older than 56 years in the sample, suggesting that some people may leave self-employment in their 50's, it raises the interesting question of where the small business owner goes to, and this could be pertinent to the topic of 'stress' in small businesses. This study shows that enjoyment decreases with the length of time in the business and this may relate to lack of realisation of expected financial success. However, it is interesting to speculate whether the self-employed are retiring early, or retiring from self-employment, and then either working fulltime or part-time as an employee.

## 4.3 HELP IN THE BUSINESS

The businesspeople in this sample average long hours (the median is 50 hours) and short holidays (the median is 2 weeks). Also noteworthy are the extra number of uncounted hours contributed to the business by family members. A common pattern is for the respondent's spouse to 'keep the books', but help also includes serving customers, trade work, collecting supplies, cleaning up at weekends, laying out goods, etc. Nearly 50 per cent of family help is unpaid. The general rule appears to be that children are paid (at less than staff rates) and spouses and parents are not. There is also a flow on effect mentioned by many

businesspeople, that long hours increase the burden of housework and childrearing carried by other members of the family.

Partnerships are also a way of sharing the business load. Forty per cent of the sample have working partners, and nearly half of these are spouses. The repertory grid analysis shows that those with partners are generally less stressed than those without partners. Obviously a partner with a different area of expertise can contribute to decision making as well as the workload. Perhaps, too, there is a therapeutic aspect to sharing problems with a partner, or perhaps having a partner contributes to a feeling of 'membership' (Eden, 1975). However, partnerships are not without their problems. Many respondents referred to disagreements in past partnerships, and others who expressed the desire for a partner were reluctant to 'take the risk'. If the spouse is the partner, the problem of who runs the business while the owners are on holiday still exists. Many respondents in successful partnerships referred to the importance of understanding the needs of the partner's family, and one pair of partners even 'staggered' their families so that they were not both bringing up young children at the same time. The general rule appears to be that help in the business, although difficult to achieve, does reduce stress.

## 4.4 EMPLOYING STAFF

Staff are another source of help in the business, but they can also generate problems. Some of these are: keeping staff busy when business is slack, paying redundancy if staffing levels are reduced, finding the money for wages, keeping good workers, and having the responsibility of being 'a good boss'. Matheson & Ivancevich (1982; p.111) report that, "The available evidence supports the conclusion that responsibility for people is a much more potent stressor than responsibility for things".

Personality conflicts with staff were rarely reported. The repertory grid shows that those employing staff are generally less stressed than those without staff. Similarly, Cooper et al (1978) reported that the relationship between the dentist and his staff did not appear as a significant stressor. One of the most difficult situations appears to be when the business is not large enough or successful enough to employ staff. This necessitates the owner working long hours, being unable to take meal breaks, and being unable to leave the business so that s/he can do either personal or work chores. Hence the freedom of 'being one's own boss' may also curtail one's freedom.

## 4.5. HOME/WORK INTERACTION

The situations that cause stress are most highly differentiated in terms of those that interfere with family and leisure time and those that do not. Cooper et al (1978) also found that dentists experienced stress from their 'job interfering with their personal live', and Howard et al (1976, cited in Cooper et al, 1978) found this to be a good predictor of job dissatisfaction with his Canadian dentists. Of particular importance is 'spending a lot of time at work'. However, it is difficult to evaluate the total amount of stress contributed by this situation as it is also regarded positively in terms of 'productivity' and, interestingly, it is often rated as 'satisfying'. This perhaps indicates that businesspeople may experience conflict in enjoying time with their families and time in their businesses. This is applicable to both males and females, but the conflict is more apparent for females as they more often rated 'spending a lot of time at work' as 'causing physical and/or mental symptoms' even though they average fewer hours at work than the male sample. Many females spoke of their childrens' as well as their husband's expectations of them with regard to cooking and housework. The business hours often necessitated a redistribution of these chores, and the females reported

that some family members rose to the occasion whilst others did not.

Age differences are also relevant to the home/work interaction. In this aspect, the middle age group appear more stressed overall than the younger or older groups. The younger age group often have working wives, no children, fewer successful friends with whom to compare themselves, and plenty of time to succeed. The older age group have money put aside from a business that was established when times were easier, and their children have usually left home. However, the middle age groups have the maximum financial demands for family, house and business, just at a time when they realise that they have a limited amount of time left in which to 'succeed'.

Clearly businesspeople are not alone in working under time pressures that necessitate long hours at work rather than with the family. Dewe (1987a) found, that having 'too much to do in a given time was a stressor for nurses. Nurses also found, as do businesspeople, that interruptions are time consuming and make it difficult to complete their routine tasks. Teachers also reported time pressures and extra demands on their time (Dewe, 1986).

## 4.6 FINANCIAL STRESS

For all groups the repertory grid shows that 'having too little work/business', 'paying accounts', 'trying to collect debts' and 'dealing with work mistakes' are the stressful situations with the greatest numbers of contributing reasons, presumably because they have the potential to severely disrupt cashflow. Having 'too little work' was also a significant stressor for dentists (Cooper, et al, 1978). Another reason associated with these situations reveals that lack of financial success affects personal security, presumably because bankruptcy could leave the businessperson in debt and unable to find alternative work. Financial success is also associated

with 'reputation' and 'self-esteem' as well as feelings of responsibility towards family and creditors.

The qualitative data reveals a vicious 'flow-on' effect of stress for tradespeople which is particularly associated with 'paying accounts' and 'trying to collect debts'. The chain of payment is illustrated below:

PROPERTY DEVELOPER
employs
ARCHITECT
employs
CONSULTANT ENGINEER
employs
BUILDER
employs
SUBCONTRACTORS
who purchase from
WHOLESALERS

As the New Zealand economic situation becomes 'tighter', each employer is more likely to be late paying accounts rather than pay on the traditional twentieth of the month. Payment through the ranks may now take 50 days longer than it used to. The builder has the power to withhold labour if he does not receive progress payments, but the subcontractor is hampered by a builder who is slow to pay and a wholesaler who will not supply goods until debts are paid. The situation is particularly difficult for those subcontractors, such as excavators, who are needed at the beginning of a project or several times throughout the project, but who are unlikely to be paid until the development is completed. If they do receive progress payments, the retention fee is still withheld until the end of the project. Several tradespeople complained that builders are completing developments on the credit of tradespeople. For the tradespeople, time is being spent on trying to collect debts, putting off creditors, and 'shopping around' other suppliers where they are not in debt. The problem is exacerbated by the repercussions of

businesses going into receivership. Several tradespeople reported having to write off thousands of dollars owed to them by bankrupt businesses. Another aspect of the problem for tradespeople is that if they cannot afford materials, they start letting customers down and acquire a reputation for unreliability. Some businesspeople use specialist debt-collectors, but most believe that the debt-collector who does not have any legal backing cannot do anything more than they can do themselves. Business ethics are also changing in relation to businesses that are in financial difficulty. Debtors may stop paying their accounts to businesses in trouble and creditors usually 'put pressure on'. Both groups help ensure the downfall of the struggling business. Many tradespeople and retailers cited suppliers who demand immediate cash payments for all purchases by the small business owner.

A particularly unethical aspect of the situation is that as tradespeople become desparate for work, they cannot afford to turn down work, even from people whom they know to be bad payers, and developers and builders are reported to be taking advantage of this situation by keeping tradespeople waiting even longer for payments.

The vicious circle described above creates other pressures. More time is spent on paper work for tenders etc. and also on telephoning creditors and debtors, which means that longer hours are needed to do productive work. Outstanding accounts lead to larger overdrafts and interest repayments, which, again, lead to longer hours being necessary to generate an income. Because of the pressure to obtain work, tradespeople are submitting more tenders at lower prices. Several instances were reported of contractors going bankrupt because they won more tenders than expected and then did not have the resources to undertake all the jobs. Under these circumstances, planning is impossible. Smaller businesses particularly, suffer in this economic environment. Larger businesses

attempt to gain a reputation that enables them to be among a select few who are invited to tender by national companies for long term projects.

For retailers, financial stress has different aspects than for tradespeople. For them, debt collecting is not as great a problem because bouncing cheques are not as frequent as unpaid accounts. However, nearly every retailer admitted to starting off undercapitalised, with resources being stretched to open the business because of the necessity to be employed.

Retailers are mainly concerned about 'having too little work/business'. This is particularly pertinent when, unlike many tradespeople, they have high overheads such as rental and rates, repayments on 'keymoney' and a stock that they are replacing at inflating prices. They also face the prospect of regular rental increases when landlords try to cover their costs on property bought at inflated prices. Landtax is another charge that they must soon face. Credit cards and GST not only increase their working hours but also increase their running costs. They attempt to reduce expenditure by reducing staffing levels, and consequently commit themselves to even longer hours. For the retailer it is important that the business remains viable, as this asset often represents his/her only pension. Their best means of survival at present is to attempt to gain business from other retailers.

The importance of financial stress is emphasised by the fact that, across all groups and most situations, stress is lower for those whose domestic partners have an income separate from the business. Many businesspeople continue in a business that is merely 'covering costs' in the hopes of 'hanging in' until an economic upturn occurs, while the working domestic partner meets family financial commitments.

Often much depends on the financial success of a business as peoples' future plans are interwoven with the business in the same way as with a career. Starting a family building a house, sending the teenagers to university, all may need rescheduling if the business viability becomes uncertain.

There are differences between groups in relation to financial stress. The repertory grid reveals a trend for the older age groups to find the existing cash flow situation more difficult to adjust to, in particular they lack tougher debt-collecting skills and do not like deferring the payment of their own accounts. The repertory grid also shows that females evaluate their stressful situations less strongly in terms of financial security than males. 'Paying accounts', in particular, is less stressful for them. Females appear to be less concerned about, rather than more skillful at financial management than males. As the majority of female respondents have a working domestic partner, it appears that they do not feel responsible for the family finances. The repertory grid shows them to be more concerned with 'reputation' than 'security'. Many females regard their business income as 'cream' for the family, to pay for holidays, clothes, etc. Even for those in partnerships with their husbands in the family business, the males appear to feel the responsibility more strongly, particularly with regard to financial management. Interestingly, females may feel less skilled at dealing with the bank manager, and several mentioned that they use the same bank as their husbands and leave him to deal with the bank manager.

Although the majority of businesspeople do not feel greatly stressed by the bank manager, there are, in fact, large variations for this situation. As most business people had dealt with a succession of bank managers, their comments illustrate wide differences between bank manager's

views of small businesses. Businesses with high overheads in capital and large running costs in labour are watched carefully and held accountable by the bank manager. For example, earth-removing contractors tend to have a few customers who have very large accounts. A single late payment can force the contractor to increase his overdraft to buy fuel and pay his staff wages. In such a case, the bank manager is almost constantly in touch with him. This represents a loss of independence for the businessperson and, in fact, can mean that his financial viability is precarious if he does not do as the bank manager requires.

Many businesspeople are reducing their personal standards of living during this economic downturn. In more extreme cases, some respondents who could no longer meet business running costs had moved house or were in the process of moving to a less expensive home. It appears that only a very successful business can support the personal financial commitments that many respondents had made. Although this research project does not measure the respondent's standard of living, the author observed all homes visited to be well above the average Christchurch value. The standard of living also appeared to be high as observed in terms of cars, personal jewellery and childrens' schooling. A few respondents stated lack of sympathy for 'struggling businesses' and criticised businesspeople in general for not using money wisely during the 'good times'. High lifestyle expectations could play a part in the demise of some small business operations. Although it is important to commence a business with sufficient capital, the philosophy expressed by many businesspeople of refinancing ones' way out of financial difficulties does not appear to be successful in times of economic recession. Different strategies appear to be appropriate in times of economic expansion and economic contraction, and it is important to be flexible enough to change strategy depending on economic circumstances.

## 4.7 ADMINISTRATIVE PROBLEMS

A task resented by most businesspeople is 'dealing with government departments', which along with 'dealing with interruptions', is shown by the repertory grid to be unproductive, difficult, and unsatisfying. The deregulated economy puts a lot more pressure on small businesses, and many of the sample are finding it difficult to adjust to the extra work because of a lack of appropriate skills as well as because of the extra time involved in dealing with bureaucratic paperwork. There is an increasing reliance on accountants which is also disliked by many of the businesspeople who have entered a small business in order to take control of their own affairs. For, the older age group in particular, 'dealing with government departments' is rated as a high stressor, presumably because they resent the extra workload. Altogether, the increasing bureaucratic workload contributes to the whole vicious circle of extra time and money that the businessperson is facing.

## 4.8 HEALTH PROBLEMS

The repertory grid shows that the main factors affecting physical and mental well-being are long hours, cash-flow problems, and dealing with government departments. Although 67 per cent of the respondents feel that being in business has become more stressful since they first became self-employed, only 26 per cent feel that their health is suffering. Although a variety of symptoms were reported by these respondents, the long term effects are impossible to assess. Also, the assessment of damage to the health is totally subjective. The only reported symptom that has obviously developed over a period of time, and is also measurable, is high blood pressure. However, high blood pressure can have contributary causes other than business worries. Most researches encounter problems in attempting to correlate health and stress. (See Kagan & Levi (1974) for a review of the literature which

attempts to relate psycho-social stressors to ill health.) In this study the only possible assessment of the relationship is that some respondents did report symptoms which they attributed to business stress, and these symptoms are probably associated with some deterioration in health.

## 4.9 PLANNING THE FUTURE

'Planning the future' and 'adapting to changing business conditions' are closely related and mainly involve financial considerations. Most businesspeople find that economic planning is a major source of concern, and they appear to have few support sources in this area. However, most respondents do feel that they are adapting by altering the goods or services that they offer, reducing the area rented, using staff more efficiently, etc., and many commented that the changes are satisfying as the business is running more efficiently. Whilst they feel that New Zealand's economic future is not within their control, they do believe that it is within their control to make the necessary changes to adapt to the economic conditions.

'Planning the future' appears to be more difficult for the retailers because their retirement income often depends on the sale of the business for 'goodwill', 'key money', etc. As a group, they have fewer options for alternative employment than the trade sample. Many of the tradespeople do not have a saleable business but they often contribute to a private pension scheme or have a property or section which they plan to develop for sale in the future.

## 4.10 FUTURE BUSINESS TRENDS

Economic forecasts for New Zealand are gloomy, and it seems unlikely that, in the short term, prosperity will return to the majority of small businesses. Some of the respondents had already experienced bankruptcy once, and had returned to business using different economic strategies. Other respondents are making adaptations that

appear to be economically very successful. However, it seems that the process of adaptation will continue for some time. For example, the general tightening of credit means that some suppliers of food to dairies and coffee bars, and some suppliers of petrol to contractors, etc. are demanding immediate payment for goods. This means that businesspeople are paying for goods before they have the opportunity to sell them, and they need to allow for this in their pricing.

Some employers are looking carefully at the basis on which staff are employed. Because of the unreliability of work flow and the problem of paying staff redundancy money, some tradespeople are already employing workers on a contract basis. This strategy provides a disincentive for workers to slow down as a job nears completion. If this practice becomes widespread, the work pool will become very fluid, creating an administrative nightmare for government departments dealing with unemployment benefits, social welfare benefits, etc.

Stock levels are another area which is under scrutiny by employers. To avoid tying up money in stock, some tradespeople are requiring customers to supply their own materials so that they work on a 'labour only' basis. This arrangement can also benefit the customer who will deal directly with the wholesaler for materials and, thereby, not pay retail prices for materials.

Some tradespeople are attempting to find ways out of the system of tendering. Many admitted to the 'adrenaline trip' of working to a deadline to submit a tender, and the thrill of competition in winning a tender. However, they also expressed dissatisfaction with the time spent preparing tenders, and the impossibility of planning work schedules well ahead. The only way out of the tender market appears to be through coalitions formed between large firms and builders, and between builders and favoured

tradespeople.

Finally, businesspeople are becoming aware of the necessity of professional financial management. Some businesspeople reported using a management advisor as well as an accountant. They might have monthly meetings with the advisor to discuss direction, advertising, pricing etc. This may represent a future trend for management advisors who specialise in certain types of businesses as the financial management of a business now appears to be the factor most pertinent to its viability.

## 4.11 COMPARISONS BETWEEN SMALL BUSINESS OWNERS AND OTHER OCCUPATIONAL GROUPS

Financial stress as an aspect of occupational stress is probably only applicable to the self-employed and a few other groups such as top executives and sales managers. However, for some stressors such as work overload and administrative duties, comparisons with other occupational groups are relevant.

Quantitative work overload is a pervasive stressor. In this research it is an important stressor and has implications for both home life and health. Breslow & Buell (1960, cited in Cooper & Marshall, 1976) found that workers in light industry under the age of 45 years, who are 'on the job' more than 48 hours a week, have twice the risk of CHD, compared with similar employees who work 40 or fewer hours a week. French et al (1965, cited in Cooper & Marshall, 1976) found that one symptom of stress, low self-esteem, was significantly linked to qualitative work overload for university professors. In the small business sample, qualitative work overload may equate to high expectations of financial success, and this was found to affect self-esteem for the male respondents. Both high workload and variable workload were found to be significant stressors for air traffic controllers (Crump et al, 1980 & 1981). Similarly, the retailer experiences an extremely

variable workload, and can sometimes be in the unfortunate position of working long hours but having few customers.

This research project found administrative duties to be time-consuming and unproductive for many businesspeople. Administrative duties were also considered an unproductive chore by ministers of religion (Dewe, 1987b). Kroes et al (1974, cited in Cooper & Marshall, 1980) reported that their police sample felt that they spent too much time on paperwork to the detriment of their 'real work'.

In the Repertory Grid, this sample of businesspeople gave reasons for the causes of the stressful situations, and, interestingly, these had much in common with an occupational group as different as air traffic controllers (Crump et al, 1980 & 1981). Both groups found stressful situations to be influenced by their frequency, controllability, avoidability and by their length of duration suggesting that these factors are integral aspects of stress.

## 4.12 LIMITATIONS AND FUTURE RESEARCH RECOMMENDATIONS

Despite arguments already discussed with regard to the suitability of repertory grid technique for arriving at group consensus grids, it proved an instrument well suited to an exploratory study as it allowed respondents the freedom and range to identify their stressors, and provided a good 'lead in' to the qualitative data. However, the grid would be very difficult to administer to large numbers of respondents and, therefore, these results lack generalisability on a local basis because of the small sample in terms of the number of businesses in Christchurch and on a national basis because economic circumstances do vary from area to area.

Another possible limitation is the 'snowball' sampling technique, as it may have produced the most well known individuals or those most willing to talk about their

problems. It may be that those individuals with the greatest number of problems and the least successful businesses are also the least willing to be interviewed. Conversely, of course, it could be that those individuals with the most stress are the people who most desire to vent their frustration.

The study has focussed on a neglected, but important, sector of the community, and financial stress has emerged as an important stressor. Research is needed to formulate specific ways of reducing stress amongst the self-employed through personal strategies, government policies and enlightened advice from small business advisors. Future research might also usefully examine personality characteristics of the self-employed, and this could lead to the identification of particular health problems. Also, comparisons between the employed and the self-employed could provide insights into stress in both groups.

# CHAPTER FIVE

## CONCLUSION

This research project has investigated the causes of stress for owner/operators of small businesses. A self-perpetuating cycle of stress exists for many of the respondents. A primary reason for starting a business is to become independent by taking control of one's own life, and this goal is often pursued despite insufficient capital and lack of good financial advice. Against this background, many of the businesspeople commence business with a heavy burden of debt repayment which necessitates working even longer hours than the already gruelling hours for retailers and the sometimes erratic hours for tradespeople. The greater the cashflow problem, the more inclined the businessperson is to undertake the workload his/herself rather than invest in more staff.

In the macro environment, the situation is exacerbated by the general economic downturn which has reduced the amount of work available for most businesspeople. Although the small business owner has a strong desire to control his/her own life, this is becoming increasingly impossible, as the cycle of debt created by the economic environment is totally outside his/her control, and also makes additional time pressure demands of him/her. Also uncontrollable are the bureaucratic demands of government departments which, again, exacerbate the already existing time demands and financial demands made on businesspeople.

The consequences of this situation are that businesspeople are experiencing difficulty in balancing the demands of both work and home. Males experience a strong desire to succeed in the business situation, especially because of their feelings of being financially responsible for their families. Whereas females are stressed by the long hours because of their feelings of responsibility for the home

situation. Because economic forecasts are gloomy, another consequence of the situation is that businesspeople are finding it difficult to plan the future. These strains can give rise to anxiety which may manifest in a range of physical symptoms.

Few of the stressors experienced by the businesspeople are intrinsic to the job; most are caused by external factors. This leads to the question of whether businesspeople will continue to find sufficient work satisfaction to counterbalance the dissatisfaction generated by being controlled by external factors. 'Challenge' and 'the desire for independence' appear to be becoming less pertinent to business success. The business environment is becoming more fluid, and is likely to undergo major changes as people find ways to adapt to the present economic situation. In future, those businesses most likely to succeed will be those that are financially most skillfully managed, with good financial backing from banks and having specialised management advice. Hard work, a willing spirit and a good location are no longer all that is required of the small-business owner.

# REFERENCES


AMERICAN PSYCHOLOGICAL ASSOCIATION. (1983) Publication manual of the American Psychological Association (3rd ed.). Washington DC: Author.

BABBIE, E.R. (1979) The practice of social research. Wadsworth: Belmont, California.

BANNISTER, D. & FRANSELLA, F. (1968) Inquiring man: The psychology of personal constructs. Croom Helm: London.

BANNISTER, D. & MAIR, J.M.M. (1968) The evaluation of personal constructs. Academic press: London.

BEEHR, T.A. (1976) Perceived situational moderators of the relationship between subjective role ambiguity and role strain. Journal of Applied Psychology, 61(1), 35-40.

BEEHR, T.A. & NEWMAN, J.E. (1978) Job stress, employee health, and organisational effectiveness; A facet analysis, model, and literature review. Personnel Psychology 31, 665-699.

BEUTELL, N.J. & O'HARE, M.M. (1987) Work-nonwork conflict among MBAs: sex differences in role stressors and life satisfaction. Work and Stress, 1(1), 35-41.

BRENNER, M.H. (1981) Impact of social and industrial changes on psychopathology: A view of stress from the standpoint of macro societal trends in LEVI, L. (Ed.) Society, stress and disease. Oxford University Press: Oxford.

CHERRY, N. (1984) Nervous strain, anxiety and symptoms amongst 32-year-old men at work in Britain. Journal of Occupational Psychology, 57, 95-105.

CHETWYND, S.J. (1973) Outline of th analyses available with the Grid Analysis Package. St George's Hospital: London.

CHETWYND, S.J. (1973) Generalised Grid Technique. St.George's Hospital: London.

CHETWYND, S.J. (1976) Sex differences in stereotyping the roles of wife and mother. St. George's Hospital: London.

CHINNERY, P. (1979) Stress in schools: Manager or managed? National Education, 61. (Aug.).

COOPER, C.L. (1986) Job distress: Recent research and the emerging role of the clinical occupational psychologist. Bulletin of The British Psychological Society, 39, 325-333.

COOPER, C.L. & CRUMP, J.H. (1978) Prevention and coping with occupational stress. Journal of Occupational Medicine, 20(6), 420-426.

COOPER, C.L., MALLINGER, M. & KAHN, R. (1978) Identifying sources of occupational stress among dentists. Journal of Occupational Psychology, 51, 227-234.

COOPER, C.L. & MARSHALL, J. (1976) Occupational sources of stress. Journal of Occupational Behaviour, 49, 11-28.

COOPER, C.L. & MARSHALL, J. (1980) White collar and professional stress. John Wiley & Sons: Chicester.

COX, T. (1979) Stress. University Park Press: Baltimore.

CRUMP, J.H., COOPER, C.L. MAXWELL, V.B. (1981) Stress among air traffic controllers: occupational sources of coronary heart disease risk. Journal of Occupational Behaviour, 2, 293-303.

CRUMP, J.H. COOPER, C.L. & SMITH, M. (1980) Investigating occupational stress: a methodological approach. Journal of Occupational Behaviour, 1, 191-204.

DeLEYN, W.W. (1984) American and Danish police 'dropout' rates: Denmark's force as a case study in high job satisfaction, low stress and low turnover. Journal of Vocational Behaviour, 25, 58-69.

DEVLIN, M.H. (1984a) Government assistance programmes for small businesses in New Zealand. Development Finance Corporation of New Zealand.

DEVLIN, M.H. (1984b) The population of small businesses in New Zealand. Development Finance Corporation of New Zealand.

DEVLIN, M.H. (1984c) Employment in the small business sector. Waikato University.

DEVLIN, M.H. (1984d) The small business sector in New Zealand - An introductory p rspective. Development Finance Corporation of New Zealand.

DEVLIN, M.H. (1984e) The status of small business research. Development Finance Corporation of New Zealand.

DEWE, P.J. (1986) An investigation into the causes and consequences of teacher stress. New Zealand Journal of Educational Studies, 21(2), 145-157.

DEWE, P.J. (1987a) Identifying strategies nurses use to cope with work stress. Journal of Advanced Nursing, 12, 489-497.

DEWE, P.J. (1987b) New Zealand ministers of religion: identifying sources of stress and coping strategies. Work and Stress, 1(4), 351-363.

EDEN, D. (1975) Organizational membership vs self-employment: Another blow to the American dream. Organizational Behavior and Human Performance, 13, 79-94.

ELVIDGE, J. (1987) Drought and stress in South Canterbury. University of Canterbury Publication.

FRANSELLA, F. & BANNISTER, D. (1977) A manual for Repertory Grid Technique. Academic Press: London.

GEARE, A.J. (1987) Management stress in New Zealand. New Zealand Journal of Business, 9, 10-16.

HARRIS, M. (1984) How unemployment affects people. New Society, Jan. 19.

HAW, M.A. (1982) Women, work and stress: A review and agenda for the future. Journal of Health and Social Behaviour, 23 (June), 132-144.

KAGAN, A.R. & LEVI, L. (1974) Health and environment - Psychosocial stimuli: A review. Social Science and Medicine, 8, 225-241.

KANNER, A.D., COYNE, J.C., SCHAEFER, C. & LAZARUS, R.S. (1981) Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. Journal of Behavioral medicine, 4(1), 1-39.

KELLY, G.A. (1955) The psychology of personal constructs. W.W. Norton & Co: New York.

LAWRENCE, S.R. (1984) An investigation into the role of the small firm in maintaining and creating employment in New Zealand. Development Finance Corporation of New Zealand.

McGRATH, J.E. (1976) Stress and behaviour in organisations, in DUNNETT, M.D. (Ed). Handbook of industrial and organisational psychology. Rand McNally: Chicago.

MARSDEN, D. & DUFF, E. (1975) Workless - Some unemployed men and their families. Penguin Books: Harmondsworth, England.

O'BRIEN, P.V. (1988) Tax system born of tortured mind. New Zealand Business Review, Feb. 23.

PARKER, D.F. & DECOTIIS, T.A. (1983) Organisational determinants of job stress. Organisational Behaviour and Human Performance, 32, 160-177.

PARKES, K.R. (1982) Occupational stress among student nurses: A natural experiment. Journal of Applied Psychology, 67(6), 784-796.

PAYNE, R., JICK, T.D., & BURKE, R.J. (1982) Whither stress research? An agenda for the 1980s. Journal of Occupational Behaviour, 3, 131-145.

PORTER, R. (1988) You're independent but are you an entrepreneur? New Zealand Business, June.

SLATER, P. (1977) Dimensions of intrapersonal space. John Wiley & Sons: London.

SMITH, M. (1980) An analysis of three managerial jobs. The Journal of Management Studies, May, 205-215.

SMITH, M. & ASHTON, D. (1975) Using Repertory Grid Technique to evaluate management training. Personnel Review, 4(4), 15-21.

SMITH, M., HARTLEY, J. & STEWART, B. (1978) A case study of Repertory Grids used in vocational guidance. Journal of Occupational Psychology, 51, 97-104.

STEWART, V. & STEWART, A. (1981) Business applications of Repertory Grid. McGraw-Hill: London.

SUTTON, R.I. (1984) Job stress among primary and secondary schoolteachers. Work and Occupations, 11(1), 7-28.

WELCH, S. (1975) Sampling by referral in a dispersed population. Public Opinion Quarterly, 39.

WELSH, M. (1988). The corporate enigma: Women business owners in New Zealand. Government Printing Office.

YORKE, D.M. (1978) Repertory Grids in educational research. Some methodological considerations. British Educational Research Journal, 4, 63-74.

APPENDIX A

Stressful Situations Grid (0.6 of original size)

| SITUATIONS / REASONS FOR STRESS | | TRYING TO PLAN MY FUTURE | DOING PAPERWORK | DEALING WITH INTERRUPTIONS | DEALING WITH CLIENTS/CUSTOMERS | TRYING TO COLLECT DEBTS | WORKING UNDER TIME PRESSURES | SUPERVISING STAFF AND DEALING WITH STAFF PROBLEMS | ADAPTING TO CHANGING BUSINESS CONDITIONS | DEALING WITH WORK MISTAKES | DEALING WITH THE BANK MANAGER | SPENDING A LOT OF TIME AT WORK | PLANNING WORK SCHEDULES | HAVING TOO LITTLE WORK/BUSINESS | TRYING TO OBTAIN PRODUCTS/MATERIALS | PAYING ACCOUNTS | COMPETING WITH OTHER BUSINESSES | DEALING WITH GOVERNMENT DEPTS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IT REDUCES CONTACT WITH MY FAMILY | 01 | | | | | | | | | | | | | | | | | | IT DOES NOT AFFECT CONTACT WITH MY FAMILY |
| IT AFFECTS PROFITABILITY | 02 | | | | | | | | | | | | | | | | | | IT DOES NOT AFFECT PROFITABILITY |
| IT REDUCES BUSINESS PRODUCTIVITY | 03 | | | | | | | | | | | | | | | | | | IT IS PRODUCTIVE |
| IT IS UNSATISFYING | 04 | | | | | | | | | | | | | | | | | | IT IS SATISFYING |
| IT REQUIRES SKILLS THAT I DO NOT HAVE | 05 | | | | | | | | | | | | | | | | | | IT UTILISES MY SKILLS |
| IT AFFECTS MY REPUTATION | 06 | | | | | | | | | | | | | | | | | | IT DOES NOT AFFECT MY REPUTATION |
| IT IS A RESPONSIBILITY | 07 | | | | | | | | | | | | | | | | | | IT IS NOT A RESPONSIBILITY |
| I HAVE NO CONTROL | 08 | | | | | | | | | | | | | | | | | | I HAVE CONTROL |
| IT AFFECTS MY SECURITY | 09 | | | | | | | | | | | | | | | | | | IT DOES NOT AFFECT MY SECURITY |
| IT IS ALWAYS PRESENT | 10 | | | | | | | | | | | | | | | | | | I'M NOT CONSCIOUS OF IT |
| IT IS UNPREDICTABLE | 11 | | | | | | | | | | | | | | | | | | IT IS PREDICTABLE |
| IT IS AN IMMEDIATE PROBLEM | 12 | | | | | | | | | | | | | | | | | | I HAVE TIME TO THINK |
| IT IS FREQUENTLY A PROBLEM | 13 | | | | | | | | | | | | | | | | | | IT DOES NOT HAPPEN OFTEN |
| IT AFFECTS MY SELF-ESTEEM | 14 | | | | | | | | | | | | | | | | | | IT DOES NOT AFFECT MY SELF-ESTEEM |
| IT CAUSES PHYSICAL AND/ OR MENTAL SYMPTOMS | 15 | | | | | | | | | | | | | | | | | | IT DOES NOT CAUSE ME STRESS |
| IT IS UNAVOIDABLE | 16 | | | | | | | | | | | | | | | | | | IT IS AVOIDABLE |
| IT LIMITS MY LEISURE AND/ OR SOCIAL LIFE | 17 | | | | | | | | | | | | | | | | | | IT DOES NOT INTERFERE WITH MY LEISURE TIME |
| IT CAUSES PROBLEMS AT HOME | 18 | | | | | | | | | | | | | | | | | | IT IS CONFINED TO WORK |
| | | | | | | | | | | | | | | | | | | | |

# APPENDIX B

## WORK STRESS QUESTIONNAIRE

Joan Crowe B.Sc.(Hons)

Department of Psychology, University of Canterbury

Introduction:

Thank you for agre ing to participate in this research.

This questionnaire is part of research currently being undertaken in relation to work stress.

It is emphasised that the information you give is STRICTLY CONFIDENTIAL. All your replies will be kept in a separate file identified only by your number which is:

_____

SEX: (tick one) MALE ( ) FEMALE ( )

AGE: (tick one)

| | |
|---|---|
| 26 - 35 years | ( ) |
| 36 - 45 years | ( ) |
| 46 - 55 years | ( ) |
| 56 - 65 years | ( ) |

LIVING SITUATION (tick one)

| | |
|---|---|
| Single | ( ) |
| Living with partner | ( ) |

Ages of children:

| | | |
|---|---|---|
| Young | 0 - 12 yrs | ( ) |
| Teenagers | 13 - 18 yrs | ( ) |
| Independent | 19 - over | ( ) |

EDUCATION:

Highest qualification: (tick one)

| | |
|---|---|
| 2-3 years Secondary education | ( ) |
| School certificate | ( ) |
| University entrance | ( ) |
| Bursary | ( ) |
| University degree | ( ) |
| Polytechnic qualification | ( ) |
| Other_____ | ( ) |

WORK:

What is your present work ? _____

How long have you been in your present business ? ( ) years.

How long have you been in this type of business ? ( ) years.

How long have you been self - employed ? ( ) years.

What was your previous job? _____

What is your main reason for being self-employed? _____

_____

_____

_____

Do you enjoy your present type of work ? (tick one)
YES ( )
MOST OF THE TIME ( )
SOMETIMES ( )
NO ( )

How many hours per week do you work ? (on average) ( ) hours

Approximately how many weeks holiday do have per year ? ( ) weeks

FINANCE:

Does your domestic partner do paid work outside the business? (tick one)
YES ( )
NO ( )
N/A ( )

How do you rate your business prospects for the future? (tick one)
GOOD ( )
REASONABLE ( )
POOR ( )

Would you like to sell your business ? (tick one)
YES ( )
NO ( )

Overall do you feel that the financial return per annum reflects your effort and investment ? (tick one)
YES ( )
NO ( )

STAFF:

Do you have a working business partner ? (tick one) YES ( )
NO ( )

If 'yes' is your partner a family member ? (tick one) YES ( )
NO ( )
N/A ( )

If 'yes' who is it ? _____

If applicable what is your partner's role? _____

_____

If applicable how long has your partner been in the business ?

N/A ( )
Longer than you ( )
As long as you ( )
Not as long as you ( )

Apart from partners do any family members help in the business ? (tick one) YES ( ) NO ( )

If 'yes' who are they ? _____

If 'yes' what do they do? _____

_____

Apart from partners and family how many fulltime and part-time staff do you have ? ( ) fulltime ( ) part-time

HEALTH:

How do you consider your present health to be ? (tick one)
EXCELLENT ( ) FAIR ( )
GOOD ( ) POOR ( )

Do you consider your health to be deteriorating due to your present occupation ? (tick one) YES ( ) NO ( )

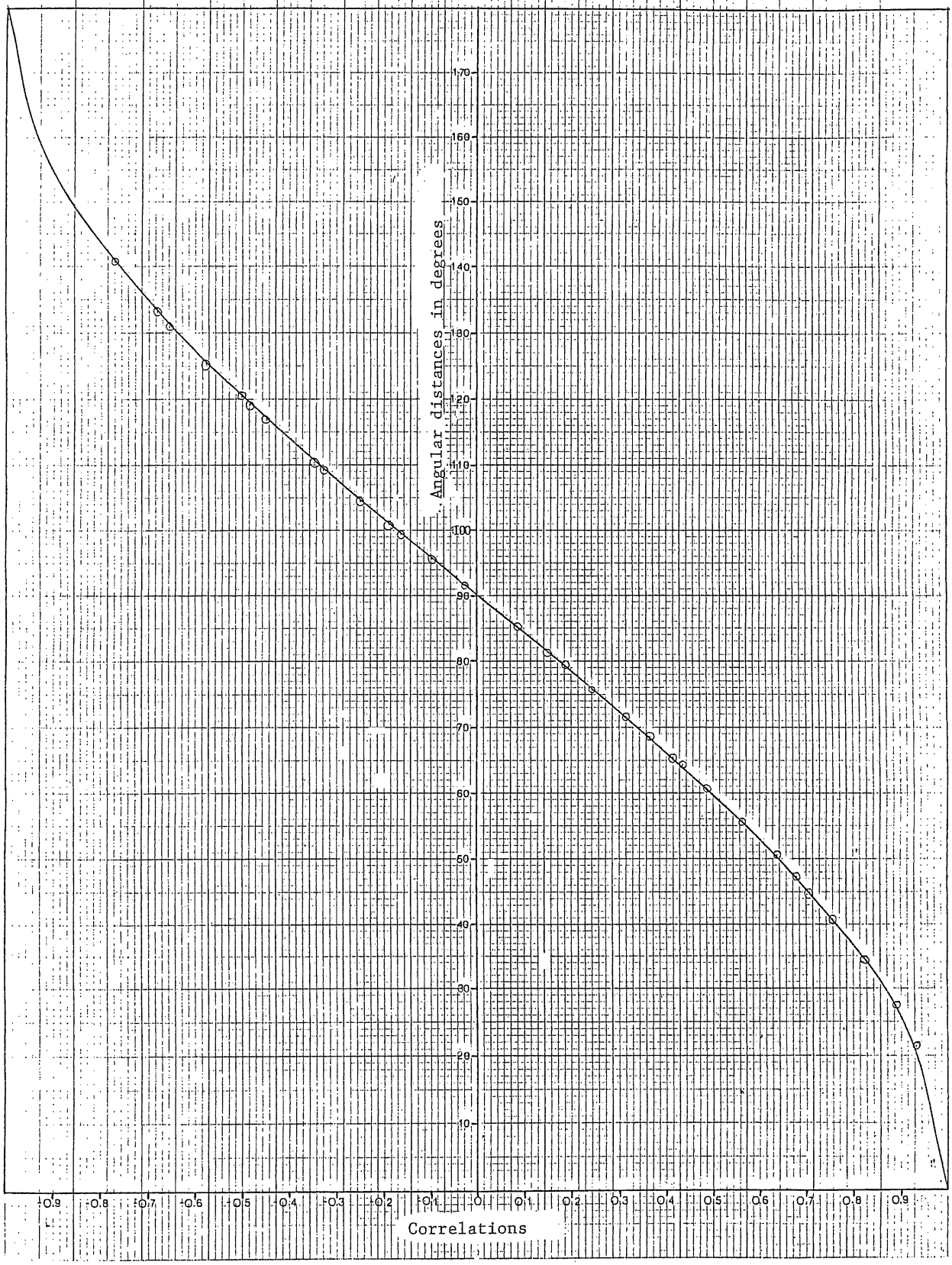
If 'yes' please describe _____

_____

_____

Do you consider that being in business has become more stressful since you first became self-employed ? (tick one) YES ( ) NO ( )

GRAPH FOR CONVERTING ANGULAR DISTANCES TO CORRELATIONS



## PRINCIPAL COMPONENTS FOR ALL BUSINESSPEOPLE

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.0591 | -0.2450 | 2.0606 | -0.2399 | -0.7358 | 1.5191 | -0.2265 | -0.5513 | 1.2152 |
| 2 | -0.1731 | -0.7173 | 1.1938 | 0.0734 | 0.2250 | 1.1432 | -0.2564 | -0.6239 | 0.7539 |
| 3 | 0.0782 | 0.3239 | 4.3771 | 0.4748 | 1.4560 | 2.2571 | 0.5569 | 1.3553 | 0.4203 |
| 4 | -0.0035 | -0.0144 | 3.8500 | -0.5245 | -1.6085 | 1.2628 | 0.4210 | 1.0247 | 0.2128 |
| 5 | 0.2086 | 0.8641 | 0.3983 | 0.1234 | 0.3784 | 0.2551 | -0.1630 | -0.3966 | 0.0978 |
| 6 | -0.2352 | -0.9743 | 1.1077 | 0.1880 | 0.5767 | 0.7751 | 0.2785 | 0.6777 | 0.3158 |
| 7 | 0.0615 | 0.2549 | 0.2338 | -0.0968 | -0.2970 | 0.1456 | 0.0284 | 0.0691 | 0.1408 |
| 8 | -0.0587 | -0.2433 | 1.0353 | -0.2666 | -0.8176 | 0.3668 | -0.0150 | -0.0365 | 0.3655 |
| 9 | 0.4123 | 1.7080 | 0.8274 | 0.0091 | 0.0280 | 0.8266 | 0.1601 | 0.3896 | 0.6748 |
| 10 | 0.0287 | 0.1191 | 1.2150 | -0.0773 | -0.2372 | 1.1588 | -0.1839 | -0.4475 | 0.9585 |
| 11 | -0.7235 | -2.9973 | 0.5929 | 0.1767 | 0.5420 | 0.2991 | -0.0721 | -0.1754 | 0.2683 |
| 12 | -0.1703 | -0.7056 | 0.3617 | -0.0529 | -0.1622 | 0.3354 | 0.0504 | 0.1226 | 0.3203 |
| 13 | 0.2944 | 1.2197 | 1.1535 | 0.0993 | 0.3047 | 1.0607 | -0.1899 | -0.4621 | 0.8472 |
| 14 | 0.1419 | 0.5877 | 0.4505 | 0.1359 | 0.4169 | 0.2767 | 0.0992 | 0.2415 | 0.2184 |
| 15 | 0.0781 | 0.3234 | 1.9208 | -0.2280 | -0.6993 | 1.4318 | -0.2047 | -0.4982 | 1.1836 |
| 16 | -0.0146 | -0.0604 | 0.7675 | -0.1837 | -0.5634 | 0.4501 | 0.0769 | 0.1872 | 0.4151 |
| 17 | 0.1344 | 0.5567 | 2.8237 | 0.3891 | 1.1933 | 1.3998 | -0.3600 | -0.8761 | 0.6323 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.3342 | -1.3846 | 0.7553 | 0.1910 | 0.5859 | 0.4120 | -0.0697 | -0.1697 | 0.3832 |
| 2 | 0.3732 | 1.5461 | 1.3481 | -0.2973 | -0.9118 | 0.5167 | -0.1780 | -0.4333 | 0.3290 |
| 3 | 0.4866 | 2.0160 | 0.8351 | 0.2118 | 0.6496 | 0.4131 | -0.1347 | -0.3278 | 0.3057 |
| 4 | 0.4120 | 1.7070 | 2.4525 | 0.4477 | 1.3731 | 0.5671 | -0.2042 | -0.4970 | 0.3201 |
| 5 | 0.1666 | 0.6901 | 0.9077 | 0.1400 | 0.4294 | 0.7233 | -0.2734 | -0.6654 | 0.2805 |
| 6 | 0.2197 | 0.9103 | 2.8079 | -0.3763 | -1.1540 | 1.4762 | 0.2855 | 0.6949 | 0.9933 |
| 7 | -0.0116 | -0.0481 | 0.7362 | -0.1114 | -0.3418 | 0.6194 | 0.0149 | 0.0362 | 0.6181 |
| 8 | 0.2003 | 0.8298 | 2.0179 | 0.3879 | 1.1895 | 0.6030 | 0.0634 | 0.1544 | 0.5791 |
| 9 | 0.1066 | 0.4416 | 2.5396 | -0.3374 | -1.0349 | 1.4685 | -0.3560 | -0.8664 | 0.7179 |
| 10 | -0.1262 | -0.5227 | 0.6178 | -0.0271 | -0.0831 | 0.6109 | 0.0470 | 0.1143 | 0.5978 |
| 11 | 0.2048 | 0.8483 | 2.6015 | 0.0148 | 0.0454 | 2.5994 | 0.5376 | 1.3084 | 0.8875 |
| 12 | 0.0957 | 0.3963 | 1.9600 | 0.1545 | 0.4739 | 1.7354 | 0.5128 | 1.2481 | 0.1777 |
| 13 | -0.1847 | -0.7653 | 1.1162 | 0.2248 | 0.6893 | 0.6410 | 0.0631 | 0.1535 | 0.6175 |
| 14 | 0.1383 | 0.5728 | 1.2147 | -0.2995 | -0.9186 | 0.3708 | -0.0245 | -0.0596 | 0.3673 |
| 15 | -0.0295 | -0.1222 | 0.4409 | 0.0750 | 0.2299 | 0.3881 | -0.0304 | -0.0740 | 0.3826 |
| 16 | -0.0343 | -0.1420 | 0.8707 | 0.1073 | 0.3291 | 0.7624 | 0.0048 | 0.0116 | 0.7622 |
| 17 | -0.2809 | -1.1636 | 0.6297 | 0.0769 | 0.2357 | 0.5742 | -0.1416 | -0.3445 | 0.4555 |
| 18 | -0.1170 | -0.4848 | 0.5178 | 0.0617 | 0.1892 | 0.4820 | -0.1912 | -0.4654 | 0.2654 |

## PRINCIPAL COMPONENTS FOR MALES

CHI SQUARED 215.5081 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 272.4833 D.F. 119

6 COMPONENTS FOUND SIGNIFICANT

17.9174
10.2526
6.4866
3.7219
2.6911
1.5380

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.1692 | -0.7160 | 2.7085 | 0.3217 | 1.0302 | 1.6471 | 0.2117 | 0.5392 | 1.3564 |
| 2 | -0.1454 | -0.6156 | 1.6653 | -0.1096 | -0.3510 | 1.5421 | 0.3271 | 0.8332 | 0.8479 |
| 3 | 0.1146 | 0.4849 | 4.4054 | -0.4618 | -1.4786 | 2.2191 | -0.4971 | -1.2662 | 0.4159 |
| 4 | -0.0630 | -0.2667 | 3.6140 | 0.4527 | 1.4497 | 1.5124 | -0.4436 | -1.1297 | 0.2362 |
| 5 | 0.2452 | 1.0381 | 0.4965 | -0.1069 | -0.3423 | 0.3794 | 0.1854 | 0.4721 | 0.1565 |
| 6 | -0.1811 | -0.7664 | 1.5891 | -0.2847 | -0.9117 | 0.7579 | -0.2290 | -0.5834 | 0.4176 |
| 7 | 0.0517 | 0.2189 | 0.4154 | 0.1155 | 0.3697 | 0.2788 | -0.0990 | -0.2520 | 0.2152 |
| 8 | -0.0989 | -0.4188 | 1.0650 | 0.2458 | 0.7870 | 0.4456 | -0.0389 | -0.0991 | 0.4358 |
| 9 | 0.4268 | 1.8067 | 0.7815 | 0.0265 | 0.0847 | 0.7743 | -0.1495 | -0.3808 | 0.6294 |
| 10 | -0.0372 | -0.1574 | 1.3365 | 0.1430 | 0.4580 | 1.1268 | 0.0943 | 0.2402 | 1.0691 |
| 11 | -0.6889 | -2.9162 | 0.9670 | -0.2476 | -0.7927 | 0.3396 | 0.0923 | 0.2349 | 0.2834 |
| 12 | -0.1428 | -0.6044 | 0.4619 | 0.0130 | 0.0418 | 0.4602 | -0.0840 | -0.2140 | 0.4144 |
| 13 | 0.3068 | 1.2985 | 1.2429 | -0.0157 | -0.0501 | 1.2404 | 0.2583 | 0.6578 | 0.8076 |
| 14 | 0.1241 | 0.5254 | 0.6597 | -0.1294 | -0.4142 | 0.4881 | -0.1330 | -0.3388 | 0.3733 |
| 15 | 0.0926 | 0.3920 | 2.3736 | 0.2389 | 0.7648 | 1.7887 | 0.2076 | 0.5286 | 1.5092 |
| 16 | -0.0112 | -0.0475 | 1.0106 | 0.1473 | 0.4715 | 0.7883 | -0.0604 | -0.1539 | 0.7646 |
| 17 | 0.1759 | 0.7447 | 2.5843 | -0.3488 | -1.1168 | 1.3371 | 0.3580 | 0.9118 | 0.5057 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.2847 | -1.2050 | 1.4870 | -0.3016 | -0.9657 | 0.5545 | 0.1009 | 0.2569 | 0.4885 |
| 2 | 0.3737 | 1.5819 | 1.4121 | 0.2659 | 0.8514 | 0.6872 | 0.2158 | 0.5497 | 0.3850 |
| 3 | 0.5093 | 2.1560 | 0.5820 | -0.1323 | -0.4235 | 0.4027 | 0.1424 | 0.3628 | 0.2711 |
| 4 | 0.4565 | 1.9325 | 2.2634 | -0.3756 | -1.2028 | 0.8167 | 0.3020 | 0.7691 | 0.2252 |
| 5 | 0.1490 | 0.6307 | 1.0236 | -0.0940 | -0.3011 | 0.9329 | 0.2745 | 0.6992 | 0.4441 |
| 6 | 0.2158 | 0.9135 | 3.2338 | 0.3389 | 1.0850 | 2.0566 | -0.2508 | -0.6388 | 1.6485 |
| 7 | 0.0244 | 0.1031 | 0.7900 | 0.1171 | 0.3750 | 0.6494 | 0.0846 | 0.2155 | 0.6029 |
| 8 | 0.2623 | 1.1101 | 1.9447 | -0.3532 | -1.1308 | 0.6660 | -0.0638 | -0.1626 | 0.6396 |
| 9 | 0.0359 | 0.1518 | 3.1298 | 0.3896 | 1.2474 | 1.5738 | 0.3678 | 0.9367 | 0.6964 |
| 10 | -0.0669 | -0.2833 | 0.8764 | -0.0263 | -0.0842 | 0.8693 | 0.0194 | 0.0493 | 0.8669 |
| 11 | 0.2503 | 1.0597 | 2.5263 | -0.0166 | -0.0532 | 2.5235 | -0.5123 | -1.3047 | 0.8212 |
| 12 | 0.1475 | 0.6243 | 1.8935 | -0.1935 | -0.6195 | 1.5097 | -0.4598 | -1.1710 | 0.1385 |
| 13 | -0.0981 | -0.4153 | 1.9432 | -0.3112 | -0.9966 | 0.9499 | 0.0096 | 0.0244 | 0.9493 |
| 14 | 0.1214 | 0.5137 | 1.2014 | 0.2828 | 0.9054 | 0.3817 | 0.0051 | 0.0130 | 0.3815 |
| 15 | 0.0345 | 0.1459 | 0.6531 | -0.1067 | -0.3415 | 0.5365 | 0.0777 | 0.1979 | 0.4974 |
| 16 | 0.0147 | 0.0622 | 0.8543 | -0.0934 | -0.2990 | 0.8649 | 0.0563 | 0.1433 | 0.8444 |
| 17 | -0.2146 | -0.9083 | 0.7713 | -0.1443 | -0.4619 | 0.5580 | 0.1485 | 0.3783 | 0.4149 |
| 18 | -0.1062 | -0.4496 | 0.6913 | -0.0987 | -0.3161 | 0.5914 | 0.2034 | 0.5181 | 0.3229 |

PRINCIPAL COMPONENTS FOR FEMALES

CHI SQUARED 214.5089 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 271.7601 D.F. 119

8 COMPONENTS FOUND SIGNIFICANT

18.7400
9.8656
5.8337
4.2471
2.0644
1.4430

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUA |
| 1 | 0.0706 | 0.3055 | 1.0028 | -0.0631 | -0.1982 | 0.9635 | -0.1077 | -0.2602 | 0.8958 |
| 2 | -0.1880 | -0.8137 | 0.6669 | 0.0497 | 0.1560 | 0.6426 | -0.1699 | -0.4105 | 0.4741 |
| 3 | 0.0671 | 0.2906 | 4.4749 | 0.3813 | 1.1977 | 3.0402 | 0.6880 | 1.6618 | 0.2786 |
| 4 | 0.0180 | 0.0781 | 4.9798 | -0.6452 | -2.0264 | 0.8735 | 0.3090 | 0.7462 | 0.3167 |
| 5 | 0.1754 | 0.7592 | 0.5199 | 0.1022 | 0.3211 | 0.4168 | -0.1648 | -0.3980 | 0.2583 |
| 6 | -0.2654 | -1.1489 | 0.8746 | 0.0327 | 0.1027 | 0.8641 | 0.2793 | 0.6745 | 0.4091 |
| 7 | 0.0521 | 0.2254 | 0.2180 | -0.0696 | -0.2187 | 0.1701 | -0.0964 | -0.2329 | 0.1159 |
| 8 | -0.0321 | -0.1388 | 1.7149 | -0.2957 | -0.9287 | 0.8523 | -0.1089 | -0.2630 | 0.7832 |
| 9 | 0.3603 | 1.5595 | 1.1347 | -0.0221 | -0.0694 | 1.1299 | 0.1708 | 0.4126 | 0.9597 |
| 10 | 0.1064 | 0.4607 | 1.2604 | 0.0444 | 0.1395 | 1.2410 | -0.2324 | -0.5612 | 0.9260 |
| 11 | -0.7393 | -3.2005 | 0.6155 | 0.1822 | 0.5723 | 0.2880 | -0.0269 | -0.0649 | 0.2038 |
| 12 | -0.2283 | -0.9881 | 0.5955 | -0.0759 | -0.2385 | 0.5387 | -0.0494 | -0.1193 | 0.5244 |
| 13 | 0.2566 | 1.1109 | 1.4854 | 0.1708 | 0.5365 | 1.1976 | -0.0242 | -0.0584 | 1.1942 |
| 14 | 0.1549 | 0.6706 | 0.5804 | 0.0685 | 0.2152 | 0.5341 | 0.1233 | 0.2979 | 0.4454 |
| 15 | 0.0485 | 0.2099 | 1.4619 | -0.1650 | -0.5181 | 1.1934 | -0.2792 | -0.6742 | 0.7388 |
| 16 | 0.0097 | 0.0418 | 0.8913 | -0.1470 | -0.4616 | 0.6782 | -0.0211 | -0.0509 | 0.6756 |
| 17 | 0.1335 | 0.5779 | 3.7593 | 0.4517 | 1.4187 | 1.7465 | -0.2896 | -0.6995 | 1.2572 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.3348 | -1.4495 | 0.4061 | 0.0599 | 0.1880 | 0.3708 | -0.0993 | -0.2399 | 0.3132 |
| 2 | 0.3320 | 1.4372 | 2.2590 | -0.4367 | -1.3718 | 0.3772 | -0.1699 | -0.4103 | 0.2089 |
| 3 | 0.4493 | 1.9448 | 0.9989 | 0.2384 | 0.7489 | 0.4382 | -0.0803 | -0.1939 | 0.4006 |
| 4 | 0.3778 | 1.6355 | 2.0208 | 0.4135 | 1.2988 | 0.3339 | 0.0301 | 0.0726 | 0.3287 |
| 5 | 0.2054 | 0.8891 | 0.8360 | 0.1721 | 0.5405 | 0.5439 | -0.1867 | -0.4510 | 0.3405 |
| 6 | 0.1946 | 0.8424 | 2.6620 | -0.4418 | -1.3876 | 0.7366 | 0.2346 | 0.5666 | 0.4155 |
| 7 | -0.1013 | -0.4386 | 1.3518 | -0.1617 | -0.5078 | 1.0940 | 0.1507 | 0.3639 | 0.9615 |
| 8 | 0.1236 | 0.5350 | 2.1199 | 0.3345 | 1.0508 | 1.0157 | 0.1352 | 0.3266 | 0.9091 |
| 9 | 0.1836 | 0.7948 | 1.9316 | -0.2286 | -0.7181 | 1.4159 | -0.2935 | -0.7089 | 0.9134 |
| 10 | -0.2056 | -0.8901 | 0.7916 | -0.1132 | -0.3557 | 0.6651 | 0.0671 | 0.1620 | 0.6389 |
| 11 | 0.1018 | 0.4409 | 3.2000 | -0.0848 | -0.2664 | 3.1290 | 0.5537 | 1.3374 | 1.3404 |
| 12 | 0.0217 | 0.0941 | 2.3599 | -0.0199 | -0.0624 | 2.3560 | 0.5670 | 1.3694 | 0.4808 |
| 13 | -0.2604 | -1.1274 | 0.3990 | 0.0749 | 0.2353 | 0.3437 | 0.0695 | 0.1678 | 0.3155 |
| 14 | 0.1191 | 0.5155 | 1.9829 | -0.3551 | -1.1153 | 0.7390 | -0.1209 | -0.2919 | 0.6538 |
| 15 | -0.1151 | -0.4984 | 0.4172 | -0.0142 | -0.0445 | 0.4152 | 0.0354 | 0.0854 | 0.4079 |
| 16 | -0.1078 | -0.4665 | 0.9412 | 0.0994 | 0.3122 | 0.8437 | 0.1065 | 0.2573 | 0.7775 |
| 17 | -0.3531 | -1.5285 | 0.8825 | 0.0143 | 0.0449 | 0.8805 | -0.1932 | -0.4667 | 0.6627 |
| 18 | -0.0957 | -0.4142 | 0.6751 | 0.0181 | 0.0567 | 0.6719 | -0.1869 | -0.4514 | 0.4681 |

## PRINCIPAL COMPONENTS FOR 26-35 YEAR OLDS

CHI SQUARED 138.8076 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 186.3773 D.F. 119

3 COMPONENTS FOUND SIGNIFICANT

21.5438
10.1822
6.1772
3.6204
2.0062
1.6746

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | 0.0376 | 0.1744 | 1.7522 | -0.1906 | -0.6082 | 1.3824 | -0.0123 | -0.0305 | 1.3814 |
| 2 | 0.2057 | 0.9548 | 1.0898 | 0.0624 | 0.1992 | 1.0502 | -0.1992 | -0.4950 | 0.8052 |
| 3 | -0.3905 | -1.8123 | 4.1914 | 0.4912 | 1.5675 | 1.7345 | 0.4775 | 1.1867 | 0.3263 |
| 4 | 0.0669 | 0.3106 | 4.2004 | -0.4965 | -1.5844 | 1.6901 | 0.4621 | 1.1484 | 0.3712 |
| 5 | -0.1362 | -0.6324 | 0.8444 | 0.0949 | 0.3027 | 0.7527 | -0.2167 | -0.5385 | 0.4628 |
| 6 | 0.1642 | 0.7623 | 1.5109 | 0.1173 | 0.3743 | 1.3708 | 0.1591 | 0.3955 | 1.2144 |
| 7 | -0.0104 | -0.0481 | 0.9319 | -0.1146 | -0.3658 | 0.7980 | 0.1425 | 0.3541 | 0.6726 |
| 8 | 0.0997 | 0.4628 | 1.0546 | -0.1736 | -0.5540 | 0.7478 | 0.0841 | 0.2091 | 0.7041 |
| 9 | -0.3402 | -1.5790 | 0.8467 | -0.0157 | -0.0502 | 0.8441 | 0.0602 | 0.1497 | 0.8217 |
| 10 | 0.0060 | 0.0277 | 0.9294 | 0.0095 | 0.0303 | 0.9285 | -0.1289 | -0.3203 | 0.8259 |
| 11 | 0.6579 | 3.0535 | 2.3408 | 0.4391 | 1.4013 | 0.3773 | -0.0640 | -0.1589 | 0.3520 |
| 12 | 0.1782 | 0.8272 | 1.0122 | 0.0424 | 0.1353 | 0.9940 | 0.2087 | 0.5187 | 0.7249 |
| 13 | -0.3296 | -1.5297 | 1.6860 | 0.0623 | 0.1988 | 1.6465 | -0.3798 | -0.9440 | 0.7554 |
| 14 | -0.1972 | -0.9152 | 0.6788 | 0.1109 | 0.3538 | 0.5537 | -0.0286 | -0.0711 | 0.5486 |
| 15 | 0.0453 | 0.2105 | 3.4853 | -0.4297 | -1.3711 | 1.6054 | -0.2674 | -0.6645 | 1.1639 |
| 16 | 0.0495 | 0.2296 | 0.9953 | -0.0756 | -0.2413 | 0.9371 | 0.0639 | 0.1587 | 0.9119 |
| 17 | -0.1070 | -0.4967 | 1.2613 | 0.0664 | 0.2120 | 1.2164 | -0.3613 | -0.8981 | 0.4098 |
| CONSTRUCT | | | | | | | | | |
| 1 | 0.2449 | 1.1365 | 0.8642 | 0.0569 | 0.1817 | 0.8311 | -0.1155 | -0.2871 | 0.7487 |
| 2 | -0.1926 | -0.8941 | 3.1909 | -0.5306 | -1.6930 | 0.3247 | -0.1080 | -0.2684 | 0.2526 |
| 3 | -0.4588 | -2.1294 | 1.1849 | -0.0737 | -0.2353 | 1.1295 | -0.2065 | -0.5133 | 0.8660 |
| 4 | -0.4086 | -1.8966 | 1.6070 | 0.1852 | 0.5910 | 1.2577 | -0.3431 | -0.8527 | 0.5306 |
| 5 | -0.1697 | -0.7879 | 0.9592 | 0.0937 | 0.2991 | 0.8697 | -0.2600 | -0.6462 | 0.4521 |
| 6 | -0.1224 | -0.5679 | 3.9362 | -0.4674 | -1.4916 | 1.7114 | 0.2540 | 0.6312 | 1.3129 |
| 7 | 0.0680 | 0.3156 | 1.4542 | -0.1437 | -0.4585 | 1.2439 | 0.1763 | 0.4382 | 1.0519 |
| 8 | -0.3653 | -1.6955 | 1.7310 | 0.2750 | 0.8774 | 0.9611 | -0.1073 | -0.2667 | 0.8900 |
| 9 | -0.0543 | -0.2522 | 2.9718 | -0.4075 | -1.3002 | 1.2813 | -0.2194 | -0.5454 | 0.9838 |
| 10 | 0.1625 | 0.7543 | 1.1415 | -0.0955 | -0.3046 | 1.0487 | 0.1895 | 0.4709 | 0.8270 |
| 11 | -0.3117 | -1.4466 | 1.5829 | 0.0935 | 0.2985 | 1.4938 | 0.3480 | 0.8649 | 0.7458 |
| 12 | -0.2778 | -1.2892 | 1.7824 | 0.0795 | 0.2538 | 1.7179 | 0.3935 | 0.9779 | 0.7617 |
| 13 | 0.1722 | 0.7994 | 0.7043 | 0.0631 | 0.2013 | 0.6637 | -0.0523 | -0.1299 | 0.6469 |
| 14 | -0.0465 | -0.2158 | 2.1248 | -0.3888 | -1.2405 | 0.5860 | -0.1794 | -0.4458 | 0.3873 |
| 15 | 0.0341 | 0.1584 | 1.1165 | 0.0621 | 0.1983 | 1.0771 | -0.1803 | -0.4481 | 0.8763 |
| 16 | 0.0267 | 0.1241 | 0.5255 | -0.0068 | -0.0218 | 0.5250 | 0.0365 | 0.0907 | 0.5168 |
| 17 | 0.3077 | 1.4284 | 0.6568 | 0.0393 | 0.1254 | 0.6411 | -0.2185 | -0.5431 | 0.3461 |
| 18 | 0.1078 | 0.5004 | 1.2772 | -0.0345 | -0.1102 | 1.2650 | -0.4043 | -1.0049 | 0.2552 |

PRINCIPAL COMPONENTS FOR 36-45 YEAR OLDS

CHI SQUARED 239.7362 D.F. 104

7 COMPONENTS FOUND SIGNIFICANT

20.1427
10.5136
6.6846
3.5587
2.3845
1.8127

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.0940 | -0.4218 | 2.5436 | -0.2882 | -0.9346 | 1.6702 | -0.2497 | -0.6455 | 1.2535 |
| 2 | -0.1733 | -0.7777 | 0.9972 | 0.1053 | 0.3413 | 0.8807 | -0.1798 | -0.4650 | 0.6645 |
| 3 | 0.0701 | 0.3149 | 4.7270 | 0.5109 | 1.6566 | 1.9826 | 0.4497 | 1.1627 | 0.6308 |
| 4 | -0.0250 | -0.1120 | 3.9723 | -0.4830 | -1.5660 | 1.5199 | 0.3976 | 1.0280 | 0.4632 |
| 5 | 0.2149 | 0.9646 | 0.5834 | 0.1073 | 0.3478 | 0.4624 | -0.1990 | -0.5146 | 0.1977 |
| 6 | -0.2391 | -1.0732 | 1.7571 | 0.2214 | 0.7179 | 1.2417 | 0.3619 | 0.9358 | 0.3660 |
| 7 | 0.0453 | 0.2032 | 0.4192 | -0.1258 | -0.4078 | 0.2529 | 0.0312 | 0.0807 | 0.2463 |
| 8 | -0.0669 | -0.3001 | 1.0637 | -0.2461 | -0.7980 | 0.4270 | 0.0012 | 0.0032 | 0.4270 |
| 9 | 0.4174 | 1.8732 | 1.1431 | 0.0181 | 0.0586 | 1.1397 | 0.2050 | 0.5300 | 0.8588 |
| 10 | 0.0368 | 0.1654 | 1.7129 | -0.1184 | -0.3838 | 1.5656 | -0.2054 | -0.5311 | 1.2835 |
| 11 | -0.7155 | -3.2110 | 0.5820 | 0.1537 | 0.4982 | 0.3338 | -0.0903 | -0.2334 | 0.2793 |
| 12 | -0.1577 | -0.7079 | 0.2824 | -0.0206 | -0.0668 | 0.2779 | 0.0057 | 0.0148 | 0.2777 |
| 13 | 0.2810 | 1.2610 | 1.2473 | 0.0456 | 0.1479 | 1.2254 | -0.0857 | -0.2217 | 1.1763 |
| 14 | 0.1473 | 0.6612 | 0.6066 | 0.1274 | 0.4130 | 0.4360 | 0.1268 | 0.3277 | 0.3286 |
| 15 | 0.1148 | 0.5154 | 1.5367 | -0.1504 | -0.4876 | 1.2990 | -0.1557 | -0.4025 | 1.1370 |
| 16 | 0.0039 | 0.0177 | 1.0653 | -0.2329 | -0.7550 | 0.4952 | 0.0652 | 0.1685 | 0.4668 |
| 17 | 0.1397 | 0.6272 | 3.7466 | 0.3757 | 1.2181 | 2.2628 | -0.4787 | -1.2376 | 0.7311 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.3803 | -1.7070 | 1.1382 | 0.1915 | 0.6210 | 0.7526 | -0.0210 | -0.0544 | 0.7496 |
| 2 | 0.3821 | 1.7149 | 1.4282 | -0.2926 | -0.9487 | 0.5282 | -0.0495 | -0.1280 | 0.5118 |
| 3 | 0.4797 | 2.1527 | 1.0101 | 0.2218 | 0.7193 | 0.4927 | -0.1571 | -0.4062 | 0.3277 |
| 4 | 0.4076 | 1.8293 | 2.6030 | 0.4227 | 1.3706 | 0.7244 | -0.2318 | -0.5994 | 0.3651 |
| 5 | 0.1854 | 0.8321 | 1.0050 | 0.0923 | 0.2993 | 0.9154 | -0.2476 | -0.6402 | 0.5056 |
| 6 | 0.1893 | 0.8497 | 3.0027 | -0.3570 | -1.1575 | 1.6629 | 0.3337 | 0.8627 | 0.9186 |
| 7 | -0.0172 | -0.0770 | 0.6610 | -0.0683 | -0.2215 | 0.8119 | 0.0492 | 0.1271 | 0.7958 |
| 8 | 0.2064 | 0.9265 | 1.9415 | 0.3519 | 1.1411 | 0.6394 | 0.0830 | 0.2147 | 0.5933 |
| 9 | 0.0779 | 0.3494 | 2.9855 | -0.3645 | -1.1818 | 1.5888 | -0.3286 | -0.8497 | 0.8668 |
| 10 | -0.1096 | -0.4919 | 0.7065 | 0.0509 | 0.1649 | 0.6793 | 0.0682 | 0.1762 | 0.6483 |
| 11 | 0.1854 | 0.8322 | 3.3074 | 0.0531 | 0.1723 | 3.2778 | 0.5781 | 1.4947 | 1.0436 |
| 12 | 0.0794 | 0.3565 | 2.1125 | 0.1787 | 0.5795 | 1.7767 | 0.4947 | 1.2790 | 0.1409 |
| 13 | -0.1600 | -0.7181 | 1.5086 | 0.2797 | 0.9068 | 0.6864 | 0.1179 | 0.3048 | 0.5935 |
| 14 | 0.1268 | 0.5690 | 1.4248 | -0.2901 | -0.9407 | 0.5399 | 0.1009 | 0.2609 | 0.4718 |
| 15 | -0.0183 | -0.0820 | 0.6359 | 0.1176 | 0.3812 | 0.4906 | 0.0080 | 0.0207 | 0.4902 |
| 16 | -0.0139 | -0.0622 | 1.1071 | 0.1854 | 0.6010 | 0.7459 | -0.0023 | -0.0060 | 0.7458 |
| 17 | -0.2856 | -1.2820 | 0.6675 | 0.0641 | 0.2078 | 0.6243 | -0.0856 | -0.2213 | 0.5753 |
| 18 | -0.1322 | -0.5932 | 0.5406 | 0.0223 | 0.0723 | 0.5353 | -0.1170 | -0.3024 | 0.4439 |

PRINCIPAL COMPONENTS FOR 46-55 YEAR OLDS

CHI SQUARED 196.7019 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 243.9611 D.F. 119

5 COMPONENTS FOUND SIGNIFICANT

15.0879
9.9792
6.3568
4.8347
3.9242
1.7207

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.0012 | -0.0047 | 2.6196 | -0.1924 | -0.6077 | 2.2503 | -0.3132 | -0.7896 | 1.6268 |
| 2 | 0.1597 | 0.6203 | 2.4300 | 0.0707 | 0.2232 | 2.3802 | -0.4250 | -1.0714 | 1.2323 |
| 3 | 0.1358 | 0.5275 | 3.4912 | 0.2473 | 0.7812 | 2.8809 | 0.5375 | 1.3552 | 1.0444 |
| 4 | -0.2268 | -0.8811 | 4.6040 | -0.5856 | -1.8499 | 1.1818 | 0.3492 | 0.8805 | 0.4065 |
| 5 | -0.2646 | -1.0276 | 1.7373 | 0.2811 | 0.8880 | 0.9487 | -0.1420 | -0.3580 | 0.8206 |
| 6 | 0.3408 | 1.3239 | 0.7185 | 0.1031 | 0.3256 | 0.6125 | 0.1898 | 0.4787 | 0.3834 |
| 7 | -0.0752 | -0.2922 | 0.5284 | -0.0091 | -0.0289 | 0.5276 | 0.0852 | 0.2149 | 0.4814 |
| 8 | -0.0926 | -0.3597 | 1.9168 | -0.3189 | -1.0073 | 0.9022 | -0.0966 | -0.2436 | 0.8428 |
| 9 | -0.3713 | -1.4424 | 1.0875 | 0.1831 | 0.5785 | 0.7528 | 0.1532 | 0.3862 | 0.6037 |
| 10 | -0.0398 | -0.1546 | 0.7527 | 0.0179 | 0.0565 | 0.7495 | -0.0707 | -0.1781 | 0.7178 |
| 11 | 0.6937 | 2.6945 | 0.4802 | -0.1096 | -0.3462 | 0.3603 | -0.0491 | -0.1237 | 0.3450 |
| 12 | 0.1572 | 0.6105 | 0.5251 | -0.0795 | -0.2511 | 0.4620 | 0.1165 | 0.2937 | 0.3758 |
| 13 | -0.2026 | -0.7870 | 1.5065 | 0.1873 | 0.5915 | 1.1566 | -0.0237 | -0.0596 | 1.1530 |
| 14 | -0.0202 | -0.0783 | 0.9976 | 0.1742 | 0.5502 | 0.6949 | 0.2096 | 0.5284 | 0.4157 |
| 15 | -0.1143 | -0.4442 | 2.6185 | -0.2263 | -0.7149 | 2.1083 | -0.3142 | -0.7922 | 1.4808 |
| 16 | -0.0639 | -0.2481 | 0.7574 | -0.1551 | -0.4899 | 0.5173 | 0.0163 | 0.0411 | 0.5156 |
| 17 | -0.0146 | -0.0568 | 3.1029 | 0.4119 | 1.3012 | 1.4098 | -0.2230 | -0.5624 | 1.0936 |
| CONSTRUCT | | | | | | | | | |
| 1 | 0.3887 | 1.5097 | 0.7868 | 0.1946 | 0.6146 | 0.4091 | 0.0092 | 0.0232 | 0.4086 |
| 2 | -0.4049 | -1.5728 | 0.8255 | 0.0477 | 0.1506 | 0.8028 | -0.2613 | -0.6587 | 0.3689 |
| 3 | -0.3638 | -1.4131 | 1.9373 | 0.3891 | 1.2292 | 0.4263 | -0.0483 | -0.1218 | 0.4115 |
| 4 | -0.2568 | -0.9975 | 3.9235 | 0.5928 | 1.8727 | 0.4165 | -0.0013 | -0.0034 | 0.4165 |
| 5 | -0.0809 | -0.3141 | 1.4337 | 0.2690 | 0.8497 | 0.7117 | -0.2571 | -0.6482 | 0.2915 |
| 6 | -0.3167 | -1.2301 | 2.7883 | -0.2581 | -0.8153 | 2.1236 | 0.2372 | 0.5980 | 1.7660 |
| 7 | -0.1263 | -0.4907 | 1.2636 | -0.1470 | -0.4644 | 1.0679 | -0.2045 | -0.5157 | 0.8019 |
| 8 | -0.0362 | -0.1405 | 2.7499 | 0.4008 | 1.2660 | 1.1672 | 0.1795 | 0.4526 | 0.9623 |
| 9 | -0.2761 | -1.0726 | 2.5889 | -0.1850 | -0.5845 | 2.2473 | -0.3589 | -0.9049 | 1.4284 |
| 10 | 0.0351 | 0.1365 | 1.0106 | -0.1265 | -0.3996 | 0.8509 | -0.1693 | -0.4269 | 0.6687 |
| 11 | -0.1992 | -0.7738 | 2.5361 | -0.0755 | -0.2385 | 2.4792 | 0.4944 | 1.2465 | 0.9254 |
| 12 | 0.0189 | 0.0731 | 2.1691 | 0.0915 | 0.2892 | 2.0855 | 0.4877 | 1.2295 | 0.5738 |
| 13 | 0.2249 | 0.8735 | 1.0012 | 0.0933 | 0.2948 | 0.9143 | -0.0610 | -0.1538 | 0.8906 |
| 14 | -0.2212 | -0.8592 | 1.0497 | -0.1939 | -0.6125 | 0.6745 | -0.0427 | -0.1077 | 0.6629 |
| 15 | 0.0997 | 0.3872 | 0.5079 | -0.0185 | -0.0585 | 0.5045 | -0.0266 | -0.0671 | 0.5060 |
| 16 | 0.0189 | 0.0735 | 1.2284 | 0.0125 | 0.0394 | 1.2269 | -0.1596 | -0.4023 | 1.0450 |
| 17 | 0.3238 | 1.2579 | 0.9072 | 0.0722 | 0.2281 | 0.8552 | -0.1682 | -0.4241 | 0.6753 |
| 18 | 0.1743 | 0.6772 | 1.1276 | 0.1397 | 0.4414 | 0.9328 | -0.1821 | -0.4591 | 0.7220 |

PRINCIPAL COMPONENTS FOR 56 -65 YEAR OLDS

CHI SQUARED 176.8185 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 215.9243 D.F. 119

7 COMPONENTS FOUND SIGNIFICANT

15.4660
12.1209
8.4486
6.8084
3.4193
3.0235

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.0393 | -0.1545 | 2.8738 | -0.0894 | -0.3111 | 2.7770 | -0.2933 | -0.8524 | 2.0503 |
| 2 | 0.0635 | 0.2496 | 2.7357 | 0.0736 | 0.2563 | 2.6700 | -0.1815 | -0.5274 | 2.3918 |
| 3 | 0.2087 | 0.8209 | 4.1994 | 0.3691 | 1.2850 | 2.5481 | -0.2045 | -0.5944 | 2.1947 |
| 4 | 0.0769 | 0.3023 | 3.6157 | -0.2930 | -1.0202 | 2.5748 | -0.2971 | -0.8634 | 1.8292 |
| 5 | -0.1149 | -0.4521 | 1.0997 | 0.0894 | 0.3113 | 1.0028 | 0.0080 | 0.0233 | 1.0023 |
| 6 | 0.2442 | 0.9603 | 0.6936 | 0.0388 | 0.1351 | 0.6753 | -0.0080 | -0.0234 | 0.6748 |
| 7 | -0.1561 | -0.6141 | 1.0971 | -0.0446 | -0.1553 | 1.0730 | 0.0658 | 0.1914 | 1.0364 |
| 8 | 0.1049 | 0.4127 | 1.7574 | -0.1256 | -0.4373 | 1.5662 | -0.3182 | -0.9250 | 0.7105 |
| 9 | -0.4612 | -1.8139 | 1.4873 | -0.1131 | -0.3937 | 1.3323 | 0.0304 | 0.0883 | 1.3245 |
| 10 | -0.1782 | -0.7007 | 2.8709 | -0.3393 | -1.1813 | 1.4753 | 0.3268 | 0.9500 | 0.5728 |
| 11 | 0.6231 | 2.4504 | 2.4352 | -0.0628 | -0.2185 | 2.3874 | 0.5079 | 1.4763 | 0.2078 |
| 12 | 0.1342 | 0.5279 | 1.4089 | -0.2660 | -0.9262 | 0.5511 | 0.0612 | 0.1779 | 0.5194 |
| 13 | -0.3427 | -1.3477 | 1.8412 | 0.1817 | 0.6327 | 1.4409 | 0.0488 | 0.1418 | 1.4207 |
| 14 | -0.1277 | -0.5020 | 1.0686 | 0.0385 | 0.1340 | 1.0506 | 0.0457 | 0.1328 | 1.0330 |
| 15 | -0.1336 | -0.5256 | 3.0370 | -0.1595 | -0.5553 | 2.7287 | 0.3325 | 0.9665 | 1.7945 |
| 16 | 0.1707 | 0.6713 | 1.6074 | 0.0134 | 0.0466 | 1.6053 | -0.3389 | -0.9850 | 0.6351 |
| 17 | -0.0724 | -0.2848 | 6.7927 | 0.6888 | 2.3981 | 1.0419 | 0.2143 | 0.6228 | 0.6541 |
| CONSTRUCT | | | | | | | | | |
| 1 | 0.2240 | 0.8808 | 1.2611 | -0.0111 | -0.0387 | 1.2596 | 0.1880 | 0.5464 | 0.9611 |
| 2 | -0.4057 | -1.5954 | 2.9569 | -0.0594 | -0.2068 | 2.9141 | -0.4555 | -1.3240 | 1.1611 |
| 3 | -0.4681 | -1.8409 | 2.0034 | 0.3549 | 1.2355 | 0.4770 | -0.0321 | -0.0934 | 0.4682 |
| 4 | -0.4073 | -1.6019 | 4.4111 | 0.5102 | 1.7764 | 1.2555 | 0.2396 | 0.6963 | 0.7706 |
| 5 | -0.1354 | -0.5326 | 1.5695 | 0.1327 | 0.4621 | 1.3560 | 0.1296 | 0.3768 | 1.2140 |
| 6 | -0.2851 | -1.1212 | 2.9267 | -0.2408 | -0.8382 | 2.2241 | -0.1560 | -0.4535 | 2.0184 |
| 7 | 0.0485 | 0.1906 | 0.9962 | 0.1108 | 0.3857 | 0.8475 | -0.0437 | -0.1270 | 0.8314 |
| 8 | 0.0653 | 0.2569 | 3.8591 | 0.4478 | 1.5589 | 1.4290 | 0.0798 | 0.2319 | 1.3752 |
| 9 | -0.0680 | -0.2676 | 3.8331 | -0.1370 | -0.4768 | 3.6058 | -0.3830 | -1.1132 | 2.3666 |
| 10 | 0.2059 | 0.8099 | 1.3946 | 0.1603 | 0.5582 | 1.0830 | -0.2101 | -0.6108 | 0.7100 |
| 11 | 0.0060 | 0.0236 | 4.0811 | 0.0931 | 0.3240 | 3.9761 | -0.5388 | -1.5662 | 1.5232 |
| 12 | 0.0842 | 0.3313 | 2.5699 | 0.1000 | 0.3483 | 2.4486 | -0.1618 | -0.4704 | 2.2273 |
| 13 | 0.3584 | 1.4094 | 2.1944 | 0.3176 | 1.1058 | 0.9716 | -0.1751 | -0.5091 | 0.7125 |
| 14 | -0.1752 | -0.6889 | 1.3757 | -0.1943 | -0.6763 | 0.9183 | 0.0521 | 0.1515 | 0.8954 |
| 15 | -0.0732 | -0.2878 | 0.5637 | 0.0030 | 0.0104 | 0.5636 | 0.1004 | 0.2917 | 0.4785 |
| 16 | 0.1968 | 0.7739 | 3.0297 | 0.3399 | 1.1833 | 1.6295 | -0.3115 | -0.9054 | 0.8097 |
| 17 | 0.1695 | 0.6666 | 0.9771 | 0.0364 | 0.1266 | 0.9611 | -0.0167 | -0.0486 | 0.9587 |
| 18 | 0.0887 | 0.3488 | 0.6182 | -0.0559 | -0.1947 | 0.5803 | 0.0347 | 0.1010 | 0.5701 |

PRINCIPAL COMPONENTS FOR RETAILERS

CHI SQUARED 183.5435 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 227.7623 D.F. 119

5 COMPONENTS FOUND SIGNIFICANT

20.8735
11.3577
7.2373
6.5290
3.4827
2.5796

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | 0.1071 | 0.4895 | 3.9450 | 0.3637 | 1.2258 | 2.4425 | 0.1596 | 0.4294 | 2.2582 |
| 2 | -0.2949 | -1.3475 | 1.0036 | 0.0063 | 0.0211 | 1.0031 | 0.2767 | 0.7444 | 0.4489 |
| 3 | 0.0079 | 0.0360 | 4.8447 | -0.4237 | -1.4279 | 2.8059 | -0.4200 | -1.1298 | 1.5295 |
| 4 | 0.1779 | 0.8127 | 4.5205 | 0.4521 | 1.5236 | 2.1991 | -0.0970 | -0.2609 | 2.1310 |
| 5 | 0.1399 | 0.6392 | 0.5989 | -0.1124 | -0.3788 | 0.4553 | -0.0027 | -0.0072 | 0.4553 |
| 6 | -0.2705 | -1.2360 | 0.7878 | -0.0982 | -0.3311 | 0.6782 | -0.1843 | -0.4959 | 0.4322 |
| 7 | 0.1077 | 0.4920 | 0.5189 | -0.0142 | -0.0479 | 0.5167 | -0.1128 | -0.3036 | 0.4245 |
| 8 | 0.0529 | 0.2419 | 1.9482 | 0.3290 | 1.1087 | 0.7190 | 0.0134 | 0.0360 | 0.7178 |
| 9 | 0.2568 | 1.1731 | 1.4612 | -0.2244 | -0.7564 | 0.8891 | 0.0289 | 0.0778 | 0.8830 |
| 10 | 0.0512 | 0.2339 | 1.8221 | 0.1226 | 0.4130 | 1.6515 | -0.1222 | -0.3286 | 1.5435 |
| 11 | -0.7536 | -3.4428 | 0.4166 | 0.0674 | 0.2270 | 0.3650 | -0.0797 | -0.2145 | 0.3190 |
| 12 | -0.1352 | -0.6176 | 0.9805 | 0.0607 | 0.2045 | 0.9387 | -0.2024 | -0.5446 | 0.6421 |
| 13 | 0.2565 | 1.1719 | 3.0485 | -0.2515 | -0.8476 | 2.3301 | -0.1214 | -0.3266 | 2.2234 |
| 14 | 0.1303 | 0.5954 | 0.5407 | -0.0896 | -0.3020 | 0.4495 | -0.1271 | -0.3419 | 0.3325 |
| 15 | 0.1024 | 0.4679 | 2.4605 | 0.1273 | 0.4289 | 2.2765 | 0.4123 | 1.1093 | 1.0460 |
| 16 | 0.1115 | 0.5093 | 0.9572 | 0.1095 | 0.3689 | 0.8212 | -0.0526 | -0.1416 | 0.8011 |
| 17 | -0.0479 | -0.2190 | 5.3144 | -0.4242 | -1.4297 | 3.2703 | 0.6313 | 1.6983 | 0.3862 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.4350 | -1.9876 | 0.7007 | -0.0713 | -0.2404 | 0.6429 | -0.0359 | -0.0965 | 0.6336 |
| 2 | 0.4290 | 1.9601 | 1.6667 | 0.1583 | 0.5336 | 1.3820 | 0.3209 | 0.8633 | 0.6367 |
| 3 | 0.3362 | 1.5362 | 2.8659 | -0.4115 | -1.3867 | 0.9429 | 0.2459 | 0.6614 | 0.5055 |
| 4 | 0.1979 | 0.9043 | 4.3438 | -0.5829 | -1.9645 | 0.4846 | 0.1389 | 0.3736 | 0.3450 |
| 5 | 0.0702 | 0.3209 | 0.9822 | -0.1480 | -0.4989 | 0.7333 | 0.0552 | 0.1486 | 0.7112 |
| 6 | 0.2722 | 1.2438 | 2.5443 | 0.1820 | 0.6135 | 2.1679 | -0.1540 | -0.4142 | 1.9963 |
| 7 | -0.0040 | -0.0182 | 1.7723 | 0.1222 | 0.4117 | 1.6028 | 0.3137 | 0.8440 | 0.8904 |
| 8 | 0.1452 | 0.6634 | 3.1827 | -0.4149 | -1.3982 | 1.2277 | -0.2692 | -0.7242 | 0.7033 |
| 9 | 0.2649 | 1.2101 | 2.9067 | 0.3326 | 1.1210 | 1.6500 | 0.0519 | 0.1397 | 1.6305 |
| 10 | -0.1130 | -0.5162 | 1.2326 | 0.1030 | 0.3471 | 1.1122 | 0.0972 | 0.2616 | 1.0437 |
| 11 | 0.2481 | 1.1334 | 2.8692 | 0.0229 | 0.0773 | 2.8632 | -0.5643 | -1.5181 | 0.5586 |
| 12 | 0.0616 | 0.2816 | 2.1375 | -0.1300 | -0.4380 | 1.9457 | -0.4240 | -1.1406 | 0.6447 |
| 13 | -0.1970 | -0.9000 | 1.4074 | -0.1430 | -0.4818 | 1.1753 | 0.0818 | 0.2201 | 1.1268 |
| 14 | 0.2394 | 1.0937 | 1.3316 | 0.1992 | 0.6712 | 0.8811 | -0.0476 | -0.1280 | 0.8647 |
| 15 | -0.0862 | -0.3940 | 1.0770 | -0.0664 | -0.2239 | 1.0268 | -0.0014 | -0.0037 | 1.0268 |
| 16 | -0.0644 | -0.2944 | 1.7612 | -0.1183 | -0.3987 | 1.6023 | 0.3055 | 0.8218 | 0.9269 |
| 17 | -0.3275 | -1.4964 | 1.2960 | -0.0378 | -0.1274 | 1.2798 | -0.0650 | -0.1748 | 1.2492 |
| 18 | -0.1052 | -0.4805 | 1.0915 | -0.0059 | -0.0198 | 1.0911 | -0.0389 | -0.1046 | 1.0801 |

PRINCIPAL COMPONENTS FOR TRADESPEOPLE

CHI SQUARED 202.9996 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 260.6788 D.F. 119

6 COMPONENTS FOUND SIGNIFICANT

16.9234
8.8742
5.9889
2.7224
2.0644
1.1988

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | 0.1016 | 0.4180 | 1.4807 | -0.1484 | -0.4421 | 1.2853 | 0.2206 | 0.5398 | 0.9938 |
| 2 | 0.1134 | 0.4665 | 1.3282 | 0.0565 | 0.1682 | 1.2999 | 0.2650 | 0.6484 | 0.8795 |
| 3 | -0.0962 | -0.3958 | 4.3852 | 0.4933 | 1.4696 | 2.2255 | -0.5507 | -1.3476 | 0.4094 |
| 4 | 0.0718 | 0.2954 | 3.4945 | -0.5249 | -1.5637 | 1.0493 | -0.4028 | -0.9858 | 0.0776 |
| 5 | -0.2337 | -0.9613 | 0.5093 | 0.1346 | 0.4011 | 0.3484 | 0.1846 | 0.4518 | 0.1443 |
| 6 | 0.2177 | 0.8956 | 1.3678 | 0.1921 | 0.5723 | 1.0403 | -0.3289 | -0.8049 | 0.3924 |
| 7 | -0.0324 | -0.1334 | 0.3578 | -0.1305 | -0.3889 | 0.2066 | -0.0471 | -0.1153 | 0.1933 |
| 8 | 0.0871 | 0.3582 | 0.7926 | -0.2220 | -0.6613 | 0.3553 | 0.0327 | 0.0799 | 0.3489 |
| 9 | -0.4443 | -1.8277 | 1.0141 | -0.1084 | -0.3229 | 0.9099 | -0.2028 | -0.4962 | 0.6637 |
| 10 | -0.0309 | -0.1272 | 1.0938 | -0.0527 | -0.1571 | 1.0691 | 0.2061 | 0.5043 | 0.8148 |
| 11 | 0.6856 | 2.8202 | 0.9193 | 0.2374 | 0.7073 | 0.4190 | 0.1164 | 0.2849 | 0.3379 |
| 12 | 0.1818 | 0.7477 | 0.3538 | -0.0538 | -0.1601 | 0.3282 | -0.0651 | -0.1594 | 0.3027 |
| 13 | -0.2921 | -1.2015 | 0.8457 | 0.0563 | 0.1677 | 0.8176 | 0.1976 | 0.4835 | 0.5838 |
| 14 | -0.1517 | -0.6242 | 0.5879 | 0.1673 | 0.4983 | 0.3396 | -0.0642 | -0.1572 | 0.3149 |
| 15 | -0.0591 | -0.2431 | 1.8619 | 0.2627 | 0.7825 | 1.2496 | 0.1626 | 0.3979 | 1.0912 |
| 16 | 0.0664 | 0.2731 | 0.7340 | -0.1880 | -0.5601 | 0.4203 | -0.0365 | -0.0894 | 0.4123 |
| 17 | -0.1849 | -0.7607 | 2.1498 | 0.3539 | 1.0542 | 1.0385 | 0.3127 | 0.7651 | 0.4531 |
| CONSTRUCT | | | | | | | | | |
| 1 | 0.2851 | 1.1728 | 0.7820 | 0.1938 | 0.5773 | 0.4487 | 0.0684 | 0.1675 | 0.4206 |
| 2 | -0.3416 | -1.4052 | 1.3835 | -0.3155 | -0.9399 | 0.5001 | 0.1577 | 0.3859 | 0.3512 |
| 3 | -0.5122 | -2.1072 | 0.4481 | 0.1292 | 0.3848 | 0.3000 | 0.0940 | 0.2301 | 0.2471 |
| 4 | -0.4722 | -1.9424 | 1.8247 | 0.3644 | 1.0854 | 0.6461 | 0.1970 | 0.4820 | 0.4138 |
| 5 | -0.2051 | -0.8437 | 1.0172 | 0.1389 | 0.4138 | 0.8460 | 0.2973 | 0.7275 | 0.3167 |
| 6 | -0.1896 | -0.7801 | 3.2000 | -0.4610 | -1.3733 | 1.3141 | -0.2926 | -0.7161 | 0.8013 |
| 7 | 0.0132 | 0.0544 | 0.6527 | -0.1144 | -0.3408 | 0.5365 | -0.0385 | -0.0942 | 0.5277 |
| 8 | -0.2165 | -0.8907 | 1.8745 | 0.3929 | 1.1703 | 0.5049 | -0.0264 | -0.0646 | 0.5007 |
| 9 | -0.0624 | -0.2566 | 2.3557 | -0.3026 | -0.9013 | 1.5433 | 0.3864 | 0.9456 | 0.6492 |
| 10 | 0.1220 | 0.5019 | 0.5523 | 0.0034 | 0.0100 | 0.5522 | -0.0281 | -0.0688 | 0.5475 |
| 11 | -0.1932 | -0.7946 | 2.5742 | 0.0591 | 0.1762 | 2.5432 | -0.5154 | -1.2614 | 0.9520 |
| 12 | -0.1113 | -0.4578 | 2.0108 | 0.1517 | 0.4519 | 1.8066 | -0.5170 | -1.2651 | 0.2061 |
| 13 | 0.1817 | 0.7476 | 1.3139 | 0.2646 | 0.7883 | 0.6925 | -0.0462 | -0.1130 | 0.6798 |
| 14 | -0.0958 | -0.3943 | 1.1524 | -0.3133 | -0.9333 | 0.2813 | -0.0007 | -0.0016 | 0.2813 |
| 15 | 0.0043 | 0.0175 | 0.3376 | 0.0638 | 0.1901 | 0.3015 | 0.0221 | 0.0541 | 0.2985 |
| 16 | 0.0311 | 0.1278 | 0.8043 | 0.0992 | 0.2956 | 0.7169 | -0.0852 | -0.2085 | 0.6734 |
| 17 | 0.2592 | 1.0662 | 0.5188 | 0.0788 | 0.2348 | 0.4637 | 0.1394 | 0.3411 | 0.3474 |
| 18 | 0.1133 | 0.4659 | 0.4739 | 0.0882 | 0.2627 | 0.4049 | 0.1853 | 0.4534 | 0.1993 |

PRINCIPAL COMPONENTS FOR THOSE WITH NO EXTRA INCOME

CHI SQUARED 188.2395 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 239.2979 D.F. 119

5 COMPONENTS FOUND SIGNIFICANT

18.4693
10.4116
7.6447
4.2395
2.9486
1.0812

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | 0.0509 | 0.2189 | 2.0919 | 0.2507 | 0.8089 | 1.4376 | 0.1944 | 0.5374 | 1.1488 |
| 2 | -0.1506 | -0.6474 | 1.4184 | -0.0012 | -0.0040 | 1.4184 | 0.2556 | 0.7068 | 0.9189 |
| 3 | -0.0435 | -0.1869 | 6.3351 | -0.6692 | -2.1592 | 1.6731 | -0.3858 | -1.0666 | 0.5355 |
| 4 | 0.0580 | 0.2492 | 4.4470 | 0.3683 | 1.1882 | 3.0351 | -0.5759 | -1.5923 | 0.4995 |
| 5 | 0.2282 | 0.9806 | 0.5749 | -0.1395 | -0.4500 | 0.3723 | 0.1211 | 0.3349 | 0.2602 |
| 6 | -0.3703 | -1.5914 | 1.1792 | -0.1130 | -0.3648 | 1.0462 | -0.2445 | -0.6760 | 0.5892 |
| 7 | 0.0379 | 0.1628 | 0.4996 | 0.0954 | 0.3078 | 0.4049 | -0.1138 | -0.3146 | 0.3059 |
| 8 | 0.0516 | 0.2218 | 0.8747 | 0.2330 | 0.7518 | 0.3096 | -0.0396 | -0.1095 | 0.2976 |
| 9 | 0.3366 | 1.4464 | 1.3394 | -0.0367 | -0.1184 | 1.3253 | -0.2004 | -0.5541 | 1.0183 |
| 10 | 0.0163 | 0.0702 | 1.1720 | 0.0943 | 0.3041 | 1.0795 | 0.1359 | 0.3759 | 0.9382 |
| 11 | -0.7033 | -3.0225 | 0.6061 | 0.0227 | 0.0733 | 0.6007 | 0.1513 | 0.4184 | 0.4257 |
| 12 | -0.1881 | -0.8082 | 0.4429 | 0.0814 | 0.2625 | 0.3740 | 0.0020 | 0.0056 | 0.3740 |
| 13 | 0.2983 | 1.2819 | 1.1944 | -0.0348 | -0.1124 | 1.1818 | 0.1160 | 0.3207 | 1.0790 |
| 14 | 0.1136 | 0.4883 | 0.7868 | -0.1410 | -0.4549 | 0.5798 | -0.0774 | -0.2139 | 0.5340 |
| 15 | 0.1225 | 0.5267 | 1.4359 | 0.1971 | 0.6359 | 1.0315 | 0.2203 | 0.6091 | 0.6606 |
| 16 | 0.0177 | 0.0762 | 1.1687 | 0.1787 | 0.5765 | 0.8364 | 0.0193 | 0.0534 | 0.8336 |
| 17 | 0.1241 | 0.5334 | 3.7555 | -0.3859 | -1.2453 | 2.2047 | 0.4214 | 1.1650 | 0.8475 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.3478 | -1.4945 | 0.5443 | 0.0022 | 0.0072 | 0.5442 | 0.1141 | 0.3155 | 0.4447 |
| 2 | 0.4428 | 1.9029 | 1.2579 | 0.2917 | 0.9412 | 0.3720 | 0.0779 | 0.2155 | 0.3256 |
| 3 | 0.4271 | 1.8355 | 1.2584 | -0.2774 | -0.8952 | 0.4570 | 0.1125 | 0.3110 | 0.3602 |
| 4 | 0.3128 | 1.3441 | 3.0741 | -0.4645 | -1.4987 | 0.8280 | 0.1967 | 0.5439 | 0.5322 |
| 5 | 0.1473 | 0.6329 | 1.2615 | -0.1569 | -0.5063 | 1.0052 | 0.2757 | 0.7624 | 0.4240 |
| 6 | 0.1951 | 0.8383 | 2.9513 | 0.3083 | 0.9949 | 1.9615 | -0.3276 | -0.9057 | 1.1412 |
| 7 | 0.0477 | 0.2051 | 0.9660 | 0.1207 | 0.3894 | 0.8143 | 0.0017 | 0.0047 | 0.8143 |
| 8 | 0.2030 | 0.8724 | 2.1613 | -0.3662 | -1.1816 | 0.7651 | 0.0456 | 0.1261 | 0.7492 |
| 9 | 0.2647 | 1.1374 | 2.5212 | 0.3476 | 1.1216 | 1.2632 | 0.3321 | 0.9181 | 0.4203 |
| 10 | -0.0724 | -0.3110 | 0.4111 | 0.0292 | 0.0942 | 0.4022 | 0.0509 | 0.1407 | 0.3824 |
| 11 | 0.1664 | 0.7151 | 2.7893 | -0.0566 | -0.1825 | 2.7560 | -0.4667 | -1.2905 | 1.0906 |
| 12 | -0.0082 | -0.0354 | 3.1513 | -0.1822 | -0.5879 | 2.8057 | -0.5434 | -1.5024 | 0.5485 |
| 13 | -0.2203 | -0.9466 | 0.9675 | -0.2289 | -0.7385 | 0.4221 | 0.0783 | 0.2164 | 0.3752 |
| 14 | 0.1994 | 0.8570 | 1.7950 | 0.3246 | 1.0475 | 0.6977 | 0.0388 | 0.1073 | 0.6862 |
| 15 | -0.0576 | -0.2477 | 1.0993 | 0.0219 | 0.0707 | 1.0743 | 0.0825 | 0.2280 | 1.0423 |
| 16 | -0.0517 | -0.2221 | 0.7744 | 0.1550 | 0.5001 | 0.5243 | 0.0443 | 0.1225 | 0.5093 |
| 17 | -0.2918 | -1.2542 | 1.2263 | 0.1106 | 0.3569 | 1.0989 | 0.1698 | 0.4696 | 0.8784 |
| 18 | -0.1307 | -0.5619 | 1.1121 | 0.0356 | 0.1150 | 1.0989 | 0.2701 | 0.7468 | 0.5412 |

PRINCIPAL COMPONENTS FOR THOSE WITH AN EXTRA INCOME

CHI SQUARED 220.4620 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 279.5292 D.F. 119

7 COMPONENTS FOUND SIGNIFICANT

17.4960
10.1677
5.6724
3.9209
2.6967
1.5489

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.1281 | -0.5359 | 2.4958 | 0.2480 | 0.7907 | 1.8706 | 0.2005 | 0.4776 | 1.6426 |
| 2 | -0.1594 | -0.6669 | 1.3526 | -0.1431 | -0.4564 | 1.1443 | 0.2352 | 0.5601 | 0.8307 |
| 3 | 0.1075 | 0.4498 | 3.9545 | -0.3615 | -1.1527 | 2.6258 | -0.6348 | -1.5120 | 0.3397 |
| 4 | -0.0746 | -0.3120 | 4.1576 | 0.5631 | 1.7956 | 0.9335 | -0.3680 | -0.8764 | 0.1655 |
| 5 | 0.2022 | 0.8459 | 0.5035 | -0.1372 | -0.4373 | 0.3122 | 0.1417 | 0.3376 | 0.1982 |
| 6 | -0.1642 | -0.6870 | 1.2031 | -0.2332 | -0.7438 | 0.6500 | -0.2571 | -0.6124 | 0.2749 |
| 7 | 0.0859 | 0.3591 | 0.2277 | 0.0780 | 0.2487 | 0.1658 | 0.0012 | 0.0028 | 0.1658 |
| 8 | -0.1525 | -0.6380 | 1.2762 | 0.2744 | 0.8750 | 0.5106 | 0.0129 | 0.0308 | 0.5096 |
| 9 | 0.4462 | 1.8662 | 0.8299 | 0.0389 | 0.1241 | 0.8145 | -0.0448 | -0.1066 | 0.8031 |
| 10 | 0.0324 | 0.1356 | 1.9089 | 0.1171 | 0.3733 | 1.7695 | 0.2975 | 0.7085 | 1.2675 |
| 11 | -0.7059 | -2.9527 | 0.9878 | -0.2589 | -0.8257 | 0.3060 | 0.0801 | 0.1908 | 0.2696 |
| 12 | -0.1250 | -0.5230 | 0.4377 | 0.0340 | 0.1084 | 0.4260 | -0.0295 | -0.0702 | 0.4210 |
| 13 | 0.2851 | 1.1926 | 1.2716 | -0.1184 | -0.3776 | 1.1290 | 0.1977 | 0.4708 | 0.9074 |
| 14 | 0.1454 | 0.6083 | 0.3127 | -0.0946 | -0.3015 | 0.2218 | -0.0698 | -0.1662 | 0.1942 |
| 15 | 0.0661 | 0.2766 | 2.5183 | 0.2541 | 0.8103 | 1.8618 | 0.1647 | 0.3923 | 1.7079 |
| 16 | -0.0080 | -0.0334 | 0.7996 | 0.1050 | 0.3349 | 0.6874 | -0.1964 | -0.4677 | 0.4687 |
| 17 | 0.1470 | 0.6148 | 2.3451 | -0.3656 | -1.1659 | 0.9859 | 0.2688 | 0.6402 | 0.5760 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.3130 | -1.3091 | 1.4738 | -0.3129 | -0.9976 | 0.4786 | 0.0311 | 0.0741 | 0.4731 |
| 2 | 0.3346 | 1.3996 | 1.3304 | 0.2464 | 0.7858 | 0.7129 | 0.1830 | 0.4359 | 0.5229 |
| 3 | 0.5180 | 2.1669 | 0.8432 | -0.1749 | -0.5576 | 0.5323 | 0.1442 | 0.3435 | 0.4143 |
| 4 | 0.4553 | 1.9046 | 2.3193 | -0.4229 | -1.3485 | 0.5009 | 0.2065 | 0.4918 | 0.2590 |
| 5 | 0.1782 | 0.7453 | 0.9038 | -0.1167 | -0.3720 | 0.7654 | 0.2547 | 0.6065 | 0.3975 |
| 6 | 0.2413 | 1.0095 | 2.9582 | 0.3871 | 1.2343 | 1.4347 | -0.2533 | -0.6032 | 1.0708 |
| 7 | -0.0472 | -0.1975 | 0.7959 | 0.1197 | 0.3816 | 0.6503 | -0.0731 | -0.1742 | 0.6199 |
| 8 | 0.1947 | 0.8145 | 2.3249 | -0.3863 | -1.2319 | 0.8093 | -0.1593 | -0.3793 | 0.6654 |
| 9 | 0.0294 | 0.1229 | 2.5058 | 0.2938 | 0.9369 | 1.6280 | 0.2880 | 0.6860 | 1.1574 |
| 10 | -0.1324 | -0.5538 | 0.9622 | 0.0022 | 0.0070 | 0.9621 | -0.1548 | -0.3688 | 0.8261 |
| 11 | 0.2225 | 0.9305 | 2.7965 | 0.0171 | 0.0544 | 2.7936 | -0.5783 | -1.3773 | 0.8966 |
| 12 | 0.1245 | 0.5209 | 1.7139 | -0.1550 | -0.4942 | 1.4697 | -0.4819 | -1.1477 | 0.1525 |
| 13 | -0.1450 | -0.6064 | 1.4696 | -0.2317 | -0.7388 | 0.9237 | -0.1588 | -0.3782 | 0.7807 |
| 14 | 0.1025 | 0.4286 | 1.2816 | 0.2956 | 0.9425 | 0.3933 | -0.0567 | -0.1351 | 0.3750 |
| 15 | -0.0024 | -0.0102 | 0.4248 | -0.0855 | -0.2726 | 0.3505 | -0.0393 | -0.0937 | 0.3417 |
| 16 | -0.0304 | -0.1282 | 1.2044 | -0.0836 | -0.2666 | 1.1333 | -0.1093 | -0.2604 | 1.0655 |
| 17 | -0.2351 | -0.9832 | 0.7543 | -0.1719 | -0.5481 | 0.4539 | 0.0968 | 0.2306 | 0.4007 |
| 18 | -0.1146 | -0.4793 | 0.5182 | -0.0971 | -0.3096 | 0.4224 | 0.1323 | 0.3152 | 0.3230 |

PRINCIPAL COMPONENTS FOR THOSE WITHOUT STAFF

CHI SQUARED 225.0090 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 282.3295 D.F. 119

8 COMPONENTS FOUND SIGNIFICANT

18.3140
9.2165
6.2175
2.9958
2.1110
1.5906

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.1140 | -0.4880 | 2.1417 | -0.2608 | -0.7918 | 1.5147 | 0.2222 | 0.5541 | 1.2077 |
| 2 | -0.1520 | -0.6506 | 1.2170 | 0.0562 | 0.1705 | 1.1880 | 0.2578 | 0.6427 | 0.7748 |
| 3 | 0.1117 | 0.4780 | 4.6299 | 0.5347 | 1.6233 | 1.9948 | -0.5084 | -1.2676 | 0.3880 |
| 4 | -0.0525 | -0.2248 | 3.6515 | -0.4688 | -1.4232 | 1.6259 | -0.4930 | -1.2293 | 0.1148 |
| 5 | 0.2318 | 0.9921 | 0.4396 | 0.1026 | 0.3115 | 0.3426 | 0.1701 | 0.4242 | 0.1627 |
| 6 | -0.2114 | -0.9048 | 1.2171 | 0.2426 | 0.7365 | 0.6746 | -0.2260 | -0.5635 | 0.3571 |
| 7 | 0.0582 | 0.2492 | 0.4502 | -0.1259 | -0.3823 | 0.3041 | -0.0541 | -0.1349 | 0.2859 |
| 8 | -0.1095 | -0.4687 | 0.8716 | -0.2303 | -0.6993 | 0.3825 | -0.0263 | -0.0656 | 0.3782 |
| 9 | 0.4364 | 1.8675 | 0.8319 | -0.0423 | -0.1283 | 0.8154 | -0.1455 | -0.3628 | 0.6838 |
| 10 | 0.0233 | 0.0995 | 1.2284 | -0.1109 | -0.3366 | 1.1151 | 0.2143 | 0.5344 | 0.8295 |
| 11 | -0.6863 | -2.9370 | 0.9357 | 0.2390 | 0.7255 | 0.4094 | 0.0994 | 0.2478 | 0.3480 |
| 12 | -0.1764 | -0.7547 | 0.3499 | -0.0455 | -0.1382 | 0.3308 | -0.0549 | -0.1369 | 0.3120 |
| 13 | 0.2725 | 1.1663 | 1.2585 | 0.0438 | 0.1330 | 1.2408 | 0.1886 | 0.4703 | 1.0197 |
| 14 | 0.1641 | 0.7024 | 0.4952 | 0.1499 | 0.4551 | 0.2880 | -0.0667 | -0.1663 | 0.2604 |
| 15 | 0.0826 | 0.3536 | 1.9906 | -0.2440 | -0.7409 | 1.4417 | 0.1515 | 0.3777 | 1.2990 |
| 16 | -0.0539 | -0.2306 | 0.7077 | -0.1597 | -0.4848 | 0.4727 | -0.1089 | -0.2715 | 0.3990 |
| 17 | 0.1754 | 0.7508 | 2.2716 | 0.3196 | 0.9702 | 1.3304 | 0.3798 | 0.9471 | 0.4334 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.3077 | -1.3170 | 0.9494 | 0.2189 | 0.6647 | 0.5076 | 0.0900 | 0.2245 | 0.4572 |
| 2 | 0.3309 | 1.4161 | 1.7404 | -0.3701 | -1.1237 | 0.4777 | 0.1167 | 0.2911 | 0.3929 |
| 3 | 0.5155 | 2.2060 | 0.6116 | 0.1628 | 0.4941 | 0.3674 | 0.1388 | 0.3460 | 0.2477 |
| 4 | 0.4768 | 2.0404 | 1.8434 | 0.3499 | 1.0624 | 0.7147 | 0.2461 | 0.6137 | 0.3380 |
| 5 | 0.1804 | 0.7721 | 0.9130 | 0.0773 | 0.2348 | 0.8579 | 0.3015 | 0.7518 | 0.2927 |
| 6 | 0.2014 | 0.8618 | 2.8990 | -0.3536 | -1.0736 | 1.7464 | -0.3508 | -0.8747 | 0.9813 |
| 7 | -0.0115 | -0.0491 | 0.6371 | -0.1005 | -0.3051 | 0.5440 | -0.0557 | -0.1388 | 0.5248 |
| 8 | 0.2235 | 0.9566 | 1.9128 | 0.3715 | 1.1278 | 0.6407 | -0.0096 | -0.0239 | 0.6401 |
| 9 | 0.0511 | 0.2186 | 2.6054 | -0.3700 | -1.1233 | 1.3436 | 0.3217 | 0.8022 | 0.7001 |
| 10 | -0.1140 | -0.4878 | 0.6628 | 0.0164 | 0.0498 | 0.6603 | -0.0801 | -0.1998 | 0.6204 |
| 11 | 0.1939 | 0.8297 | 2.7932 | 0.0630 | 0.1914 | 2.7565 | -0.5397 | -1.3456 | 0.9454 |
| 12 | 0.1056 | 0.4519 | 1.9675 | 0.2136 | 0.6484 | 1.5471 | -0.4653 | -1.1601 | 0.2012 |
| 13 | -0.1534 | -0.6564 | 1.3627 | 0.2716 | 0.8245 | 0.6829 | -0.0396 | -0.0988 | 0.6732 |
| 14 | 0.0901 | 0.3855 | 1.3421 | -0.3044 | -0.9241 | 0.4881 | -0.0384 | -0.0957 | 0.4789 |
| 15 | -0.0196 | -0.0839 | 0.5125 | 0.0948 | 0.2879 | 0.4296 | -0.0067 | -0.0166 | 0.4293 |
| 16 | -0.0217 | -0.0928 | 0.7859 | 0.1194 | 0.3624 | 0.6545 | -0.0394 | -0.0983 | 0.6449 |
| 17 | -0.2722 | -1.1648 | 0.6528 | 0.0841 | 0.2552 | 0.5876 | 0.1445 | 0.3603 | 0.4578 |
| 18 | -0.0929 | -0.3975 | 0.4964 | 0.0584 | 0.1774 | 0.4649 | 0.1950 | 0.4863 | 0.2284 |

PRINCIPAL COMPONENTS FOR THOSE WITH STAFF

CHI SQUARED 212.4099 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 252.8770 D.F. 119

6 COMPONENTS FOUND SIGNIFICANT

18.6245
9.7623
8.8832
5.7057
2.9627
2.3988

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | -0.1614 | -0.6967 | 1.5138 | 0.0408 | 0.1275 | 1.4975 | -0.0110 | -0.0328 | 1.4965 |
| 2 | 0.2422 | 1.0451 | 1.6223 | 0.0469 | 0.1464 | 1.6009 | -0.3039 | -0.9057 | 0.7805 |
| 3 | 0.0641 | 0.2765 | 3.9301 | -0.3928 | -1.2274 | 2.4236 | -0.0662 | -0.1974 | 2.3847 |
| 4 | -0.2388 | -1.0308 | 4.7345 | 0.5136 | 1.6049 | 2.1588 | -0.2975 | -0.8866 | 1.3728 |
| 5 | -0.0967 | -0.4173 | 0.8059 | -0.1179 | -0.3683 | 0.6703 | 0.1332 | 0.3969 | 0.5128 |
| 6 | 0.2727 | 1.1769 | 1.2882 | 0.0642 | 0.2006 | 1.2480 | 0.0941 | 0.2806 | 1.1693 |
| 7 | -0.0268 | -0.1159 | 1.4865 | -0.0165 | -0.0516 | 1.4839 | 0.3444 | 1.0264 | 0.4304 |
| 8 | -0.1970 | -0.8500 | 1.1924 | 0.2220 | 0.6935 | 0.7115 | -0.1246 | -0.3713 | 0.5736 |
| 9 | -0.2169 | -0.9359 | 1.3997 | -0.0854 | -0.2669 | 1.3285 | 0.1616 | 0.4817 | 1.0965 |
| 10 | -0.0342 | -0.1474 | 1.6012 | 0.0202 | 0.0632 | 1.5972 | 0.2972 | 0.8857 | 0.8127 |
| 11 | 0.7244 | 3.1242 | 0.6944 | 0.1648 | 0.5148 | 0.4293 | 0.1012 | 0.3017 | 0.3383 |
| 12 | 0.1298 | 0.5601 | 0.8546 | 0.0634 | 0.1979 | 0.8155 | 0.2567 | 0.7652 | 0.2300 |
| 13 | -0.2758 | -1.1904 | 2.3983 | -0.4253 | -1.3289 | 0.6324 | 0.0495 | 0.1475 | 0.6106 |
| 14 | -0.0714 | -0.3083 | 1.3612 | -0.0321 | -0.1003 | 1.3511 | 0.2523 | 0.7521 | 0.7855 |
| 15 | -0.0841 | -0.3627 | 2.2190 | 0.2794 | 0.8731 | 1.4548 | -0.2312 | -0.6891 | 0.9812 |
| 16 | -0.1769 | -0.7633 | 0.7799 | 0.1031 | 0.3220 | 0.6763 | -0.0743 | -0.2214 | 0.6273 |
| 17 | 0.1469 | 0.6339 | 5.3782 | -0.4483 | -1.4006 | 3.4165 | -0.5816 | -1.7335 | 0.4115 |
| CONSTRUCT | | | | | | | | | |
| 1 | 0.4073 | 1.7578 | 0.8898 | 0.0558 | 0.1743 | 0.8594 | 0.1980 | 0.5902 | 0.5111 |
| 2 | -0.4453 | -1.9219 | 0.7944 | -0.0526 | -0.1643 | 0.7674 | -0.1417 | -0.4222 | 0.5891 |
| 3 | -0.2886 | -1.2454 | 1.8123 | -0.2665 | -0.8327 | 1.1189 | -0.1122 | -0.3344 | 1.0071 |
| 4 | -0.0003 | -0.0014 | 3.8563 | -0.5857 | -1.8301 | 0.5070 | -0.0806 | -0.2403 | 0.4493 |
| 5 | -0.0086 | -0.0369 | 1.4381 | -0.2767 | -0.8646 | 0.6906 | 0.0938 | 0.2795 | 0.6124 |
| 6 | -0.3050 | -1.3163 | 2.4546 | 0.3877 | 1.2114 | 0.9871 | 0.1129 | 0.3365 | 0.8739 |
| 7 | 0.0019 | 0.0084 | 2.3284 | 0.1881 | 0.5876 | 1.9832 | -0.4047 | -1.2062 | 0.5283 |
| 8 | -0.0340 | -0.1467 | 3.0794 | -0.4892 | -1.5285 | 0.7433 | 0.1391 | 0.4145 | 0.5715 |
| 9 | -0.3284 | -1.4174 | 2.1225 | 0.1028 | 0.3213 | 2.0192 | 0.1660 | 0.4947 | 1.7745 |
| 10 | 0.1166 | 0.5034 | 1.2829 | 0.2128 | 0.6649 | 0.8408 | -0.2388 | -0.7116 | 0.3345 |
| 11 | -0.2360 | -1.0187 | 2.3805 | -0.0473 | -0.1479 | 2.3587 | 0.3001 | 0.8945 | 1.5585 |
| 12 | -0.0612 | -0.2642 | 2.6536 | 0.0008 | 0.0025 | 2.6536 | 0.3155 | 0.9404 | 1.7692 |
| 13 | 0.2413 | 1.0412 | 0.7079 | -0.0098 | -0.0305 | 0.7070 | -0.0944 | -0.2813 | 0.6278 |
| 14 | -0.2866 | -1.2369 | 1.3111 | 0.1089 | 0.3402 | 1.1954 | 0.2630 | 0.7838 | 0.5810 |
| 15 | 0.0496 | 0.2140 | 1.1783 | -0.0024 | -0.0074 | 1.1782 | 0.1229 | 0.3663 | 1.0441 |
| 16 | 0.0800 | 0.3451 | 1.8398 | -0.0811 | -0.2534 | 1.7756 | -0.3845 | -1.1461 | 0.4620 |
| 17 | 0.2990 | 1.2903 | 1.7754 | 0.0212 | 0.0661 | 1.7710 | 0.3482 | 1.0378 | 0.6940 |
| 18 | 0.1967 | 0.8490 | 1.3545 | 0.0373 | 0.1165 | 1.3409 | 0.2837 | 0.8455 | 0.6261 |

PRINCIPAL COMPONENTS FOR THOSE WITHOUT A WORKING BUSINESS PARTNER

CHI SQUARED 201.8534 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 260.3380 D.F. 119

5 COMPONENTS FOUND SIGNIFICANT

19.7536
10.6282
6.3462
4.1097
2.5612
1.4333

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUA |
| 1 | -0.0592 | -0.2633 | 1.9347 | -0.2327 | -0.7585 | 1.3594 | -0.1209 | -0.3046 | 1.2666 |
| 2 | -0.1543 | -0.6858 | 1.5935 | 0.0081 | 0.0263 | 1.5928 | -0.4054 | -1.0212 | 0.5499 |
| 3 | 0.0240 | 0.1065 | 4.6887 | 0.5200 | 1.6951 | 1.8154 | 0.4383 | 1.1042 | 0.5961 |
| 4 | -0.0827 | -0.3677 | 3.4254 | -0.4606 | -1.5016 | 1.1706 | 0.3455 | 0.8703 | 0.4132 |
| 5 | 0.2665 | 1.1843 | 0.4901 | 0.1141 | 0.3719 | 0.3518 | -0.1634 | -0.4116 | 0.1824 |
| 6 | -0.2818 | -1.2524 | 1.0999 | 0.2025 | 0.6602 | 0.6640 | 0.1458 | 0.3672 | 0.5292 |
| 7 | 0.0473 | 0.2104 | 0.2583 | -0.0879 | -0.2867 | 0.1762 | 0.0995 | 0.2506 | 0.1133 |
| 8 | -0.0301 | -0.1337 | 1.1779 | -0.2472 | -0.8060 | 0.5283 | 0.0651 | 0.1639 | 0.5014 |
| 9 | 0.3317 | 1.4740 | 1.0564 | 0.0251 | 0.0819 | 1.0497 | 0.2053 | 0.5172 | 0.7822 |
| 10 | 0.0010 | 0.0044 | 1.2848 | -0.1185 | -0.3863 | 1.1356 | -0.0502 | -0.1265 | 1.1196 |
| 11 | -0.6995 | -3.1091 | 0.8176 | 0.1918 | 0.6252 | 0.4267 | -0.1378 | -0.3472 | 0.3061 |
| 12 | -0.1590 | -0.7068 | 0.5175 | 0.0078 | 0.0254 | 0.5169 | 0.1406 | 0.3541 | 0.3915 |
| 13 | 0.3247 | 1.4430 | 1.3546 | 0.0600 | 0.1958 | 1.3163 | 0.0083 | 0.0208 | 1.3159 |
| 14 | 0.1391 | 0.6184 | 0.6886 | 0.1460 | 0.4761 | 0.4619 | 0.1975 | 0.4976 | 0.2143 |
| 15 | 0.1221 | 0.5429 | 2.6829 | -0.2824 | -0.9208 | 1.8350 | -0.3080 | -0.7758 | 1.2332 |
| 16 | -0.0072 | -0.0319 | 1.1436 | -0.2166 | -0.7060 | 0.6451 | 0.0193 | 0.0485 | 0.6428 |
| 17 | 0.2176 | 0.9669 | 3.3795 | 0.3705 | 1.2080 | 1.9203 | -0.4793 | -1.2076 | 0.4621 |
| CONSTRUCT | | | | | | | | | |
| 1 | -0.3374 | -1.4997 | 0.8792 | 0.1896 | 0.6181 | 0.4972 | -0.0575 | -0.1448 | 0.4762 |
| 2 | 0.3886 | 1.7272 | 1.3109 | -0.2847 | -0.9280 | 0.4497 | -0.1655 | -0.4169 | 0.2759 |
| 3 | 0.5003 | 2.2235 | 0.6549 | 0.1798 | 0.5861 | 0.3114 | -0.1000 | -0.2519 | 0.2479 |
| 4 | 0.4240 | 1.8843 | 2.4994 | 0.4039 | 1.3167 | 0.7657 | -0.2538 | -0.6393 | 0.3570 |
| 5 | 0.1688 | 0.7501 | 0.8153 | 0.1355 | 0.4417 | 0.6202 | -0.2065 | -0.5201 | 0.3497 |
| 6 | 0.1595 | 0.7087 | 3.3371 | -0.3653 | -1.1908 | 1.9191 | 0.2579 | 0.6497 | 1.4970 |
| 7 | 0.0103 | 0.0456 | 1.0213 | -0.1037 | -0.3382 | 0.9069 | -0.1967 | -0.4955 | 0.6614 |
| 8 | 0.2281 | 1.0140 | 2.1603 | 0.3789 | 1.2353 | 0.6344 | 0.0932 | 0.2347 | 0.5793 |
| 9 | 0.1441 | 0.6403 | 2.7567 | -0.3836 | -1.2505 | 1.1930 | -0.2369 | -0.5968 | 0.8368 |
| 10 | -0.0957 | -0.4255 | 0.8378 | -0.0257 | -0.0838 | 0.8308 | -0.1148 | -0.2891 | 0.7472 |
| 11 | 0.1989 | 0.8838 | 2.9521 | 0.0947 | 0.3087 | 2.8568 | 0.5907 | 1.4881 | 0.6424 |
| 12 | 0.0214 | 0.0952 | 2.2640 | 0.2055 | 0.6701 | 1.8150 | 0.4735 | 1.1929 | 0.3920 |
| 13 | -0.1182 | -0.5255 | 1.5856 | 0.2466 | 0.8040 | 0.9392 | -0.1221 | -0.3076 | 0.8446 |
| 14 | 0.1623 | 0.7214 | 1.5019 | -0.3113 | -1.0150 | 0.4717 | 0.0876 | 0.2208 | 0.4229 |
| 15 | -0.0334 | -0.1483 | 0.5909 | 0.0793 | 0.2586 | 0.5240 | -0.0339 | -0.0854 | 0.5167 |
| 16 | 0.0048 | 0.0212 | 0.9971 | 0.0949 | 0.3095 | 0.9013 | -0.1951 | -0.4916 | 0.6597 |
| 17 | -0.2821 | -1.2540 | 0.8106 | 0.0667 | 0.2175 | 0.7633 | -0.1070 | -0.2695 | 0.6906 |
| 18 | -0.0897 | -0.3986 | 0.6189 | 0.0704 | 0.2295 | 0.5663 | -0.1506 | -0.3794 | 0.4223 |

PRINCIPAL COMPONENTS FOR THOSE WITH A WORKING BUSINESS PARTNER

CHI SQUARED 228.4807 D.F. 104

EXCLUDING 1. MAJOR COMPONENTS

CHI SQUARED 279.7597 D.F. 119

9 COMPONENTS FOUND SIGNIFICANT

15.8888
8.6878
6.4304
3.3866
2.2796
1.3943

| | COMPONENT 1 | | | COMPONENT 2 | | | COMPONENT 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| ELEMENT | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL | VECTOR | LOADING | RESIDUAL |
| 1 | 0.0690 | 0.2751 | 2.6317 | 0.2439 | 0.7189 | 2.1149 | -0.1860 | -0.4716 | 1.8924 |
| 2 | 0.1771 | 0.7061 | 1.3975 | -0.193[illegible] | -0.5703 | 1.0723 | -0.1173 | -0.2974 | 0.9838 |
| 3 | -0.1650 | -0.6578 | 4.2619 | -0.2461 | -0.7255 | 3.7356 | 0.7245 | 1.8373 | 0.3600 |
| 4 | -0.1359 | -0.5417 | 4.5396 | 0.6573 | 1.9374 | 0.7860 | 0.2623 | 0.6652 | 0.3435 |
| 5 | -0.1062 | -0.4234 | 0.6872 | -0.1564 | -0.4609 | 0.4748 | -0.1344 | -0.3409 | 0.3586 |
| 6 | 0.1441 | 0.5742 | 1.3503 | -0.0820 | -0.2417 | 1.2919 | 0.3395 | 0.8608 | 0.5508 |
| 7 | -0.0783 | -0.3120 | 0.3558 | 0.0554 | 0.1633 | 0.3291 | -0.1214 | -0.3078 | 0.2344 |
| 8 | 0.1078 | 0.4296 | 1.2382 | 0.2721 | 0.8021 | 0.5949 | -0.1422 | -0.3606 | 0.4649 |
| 9 | -0.5142 | -2.0496 | 0.7424 | -0.0341 | -0.1005 | 0.7323 | -0.0078 | -0.0199 | 0.7319 |
| 10 | -0.0657 | -0.2617 | 1.3988 | -0.0814 | -0.2400 | 1.3412 | -0.2868 | -0.7273 | 0.8122 |
| 11 | 0.7123 | 2.8392 | 0.5772 | -0.1038 | -0.3059 | 0.4837 | 0.1096 | 0.2779 | 0.4064 |
| 12 | 0.1913 | 0.7624 | 0.5979 | 0.1513 | 0.4459 | 0.3990 | -0.0326 | -0.0827 | 0.3922 |
| 13 | -0.1999 | -0.7967 | 1.3374 | -0.1927 | -0.5679 | 1.0149 | -0.1819 | -0.4613 | 0.8021 |
| 14 | -0.1236 | -0.4926 | 0.2793 | -0.1255 | -0.3700 | 0.1424 | 0.0393 | 0.0996 | 0.1325 |
| 15 | -0.0159 | -0.0635 | 1.1508 | 0.1062 | 0.3132 | 1.0527 | -0.1959 | -0.4968 | 0.8059 |
| 16 | 0.0132 | 0.0525 | 0.4543 | 0.1474 | 0.4344 | 0.2656 | 0.0626 | 0.1589 | 0.2404 |
| 17 | -0.0101 | -0.0401 | 2.2646 | -0.4181 | -1.2323 | 0.7459 | -0.1315 | -0.3334 | 0.6348 |
| CONSTRUCT | | | | | | | | | |
| 1 | 0.3422 | 1.3639 | 0.8301 | -0.2080 | -0.6132 | 0.4541 | -0.0642 | -0.1627 | 0.4276 |
| 2 | -0.3334 | -1.3289 | 1.8608 | 0.2887 | 0.8508 | 1.1369 | -0.3006 | -0.7623 | 0.5558 |
| 3 | -0.4338 | -1.7291 | 1.3174 | -0.3129 | -0.9223 | 0.4667 | -0.1229 | -0.3116 | 0.3696 |
| 4 | -0.3710 | -1.4789 | 2.4789 | -0.5032 | -1.4831 | 0.2793 | -0.0402 | -0.1020 | 0.2689 |
| 5 | -0.1390 | -0.5540 | 1.3063 | -0.2019 | -0.5950 | 0.9523 | -0.2385 | -0.6048 | 0.5865 |
| 6 | -0.3038 | -1.2110 | 2.3803 | 0.3664 | 1.0799 | 1.2141 | 0.0506 | 0.1284 | 1.1976 |
| 7 | -0.0001 | -0.0004 | 1.0482 | 0.2154 | 0.6350 | 0.6449 | 0.1441 | 0.3655 | 0.5114 |
| 8 | -0.1475 | -0.5878 | 2.0428 | -0.3256 | -0.9598 | 1.1215 | 0.2450 | 0.6214 | 0.7354 |
| 9 | -0.0283 | -0.1128 | 2.4576 | 0.2261 | 0.6665 | 2.0134 | -0.3602 | -0.9133 | 1.1793 |
| 10 | 0.1615 | 0.6436 | 0.8128 | 0.1129 | 0.3329 | 0.7020 | 0.1750 | 0.4438 | 0.5050 |
| 11 | -0.2256 | -0.8992 | 2.5266 | 0.2011 | 0.5927 | 2.1753 | 0.4797 | 1.2165 | 0.6954 |
| 12 | -0.1994 | -0.7949 | 1.4795 | -0.0166 | -0.0488 | 1.4771 | 0.4235 | 1.0738 | 0.3241 |
| 13 | 0.2649 | 1.0558 | 0.7688 | -0.0808 | -0.2383 | 0.7120 | 0.2411 | 0.6113 | 0.3383 |
| 14 | -0.0852 | -0.3396 | 1.2835 | 0.2487 | 0.7330 | 0.7462 | -0.1375 | -0.3488 | 0.6245 |
| 15 | 0.0305 | 0.1217 | 0.4662 | -0.0677 | -0.1996 | 0.4263 | -0.0237 | -0.0600 | 0.4227 |
| 16 | 0.0587 | 0.2339 | 1.0275 | -0.0141 | -0.0415 | 1.0258 | 0.2410 | 0.6112 | 0.6522 |
| 17 | 0.2935 | 1.1701 | 0.6166 | -0.1140 | -0.3359 | 0.5038 | -0.1188 | -0.3013 | 0.4130 |
| 18 | 0.1647 | 0.6564 | 0.5612 | -0.0643 | -0.1895 | 0.5253 | -0.1701 | -0.4314 | 0.3392 |